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Improved Convertible Fence.

The object of the inventor in designing this structure has been to obtain one that could readily be converted into many different kinds of fences, and also be applied to other uses not generally attainable in structures of a similar nature. In Fig. 1 we present a view of the fence as arranged in straight panels; in Fig. 2 the same pieces or parts of the fence are shown in the form of a rail, or worm fence, as it is sometimes designated; and Fig. 3 is a representation of a shed or hut, also built up from the same parts as the preceding plans are. The construction of the fence is quite simple, inasmuch as it consists only of a few distinctly different details. Many pieces are required in the aggregate, but the essentially different nature of them is not changed in building the lines of fence herewith illustrated. In the straight panel fence, Fig. 1, the uprights, A, are notched, and the bars, B, placed on every alternate notch; these bars are then secured by nails. The fence is made in sections or panels, and it will be seen by looking at the engraving that several panels are joined together by the diagonal braces, C. These braces are supported by a rod, D, running through the tops of the adjoining uprights, and a cross-stay, E, is further pinned to each leg of the braces in the manner shown. It will also be seen that the bars of each panel are embraced by the cross-stay, E, in a notch cut to receive them. In this manner the several panels are firmly secured against accidental dislodgement. In the rail plan of this fence the uprights are notched in the same manner as the others and the bars nailed to them; the ends of the bars, however, are extended beyond the notched uprights, so as to permit the several panels, or sections, to be set angularly, as shown. When this plan is desired, the braces, C, in the straight plan of fence are omitted, and the caps, F, used instead. In Fig. 3 the house, or shelter-hut, is shown, and to change the fence into this form it is only necessary to remove the braces and separate the panels, then to invert each alternate panel and adjust the ends of the bars thereof opposite the spaces between the bars of the panels which have not been inverted, and to shove the inverted panels along a sufficient distance to cause the bars thereof to occupy the said spaces, and the posts of each pair of panels to come opposite one another as shown. The panels thus doubled are set up in the form of barracks or a shanty, and are extremely useful for sheltering stock and farm produce in the winter.

These fences can be set up temporarily around the growing crops in the summer season, and, later in the year, when the grain has been harvested, taken down and erected as shown in Fig. 3; so that a double duty is thus obtained from the parts of which the fence is constructed.

This fence is the invention of H. C. Foote, 127th New York Volunteers, and was patented on Dec. 17, 1861. For further information address the inventor, Company A, 127th Regiment, N. Y. V., Port Royal, S. C.

Fig. 1

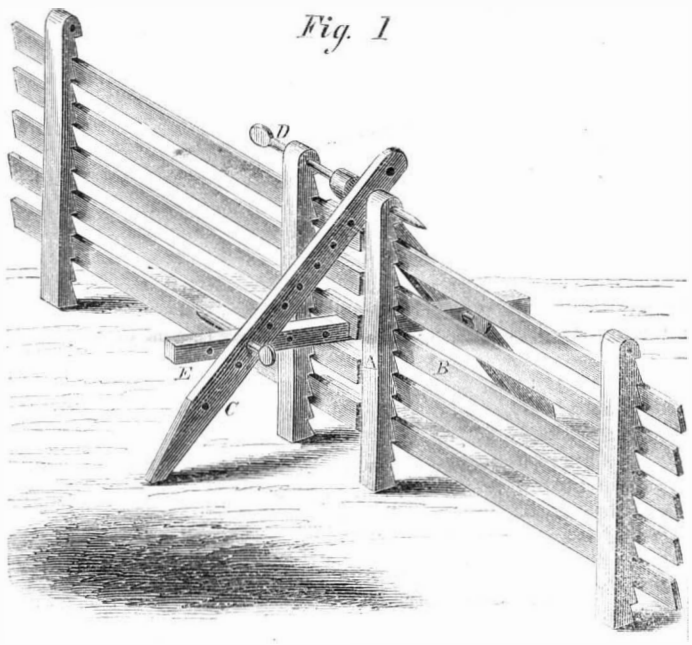


Fig. 2.

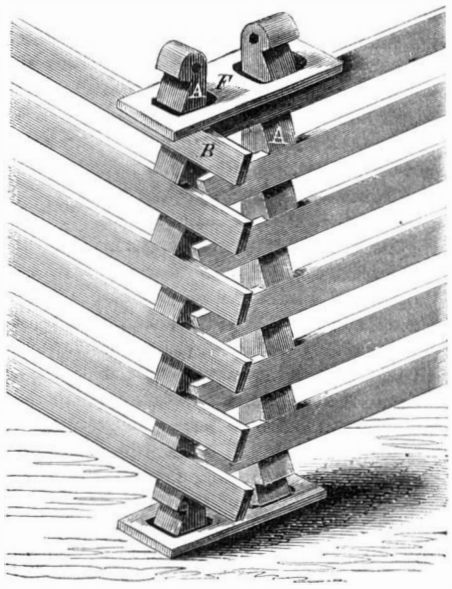
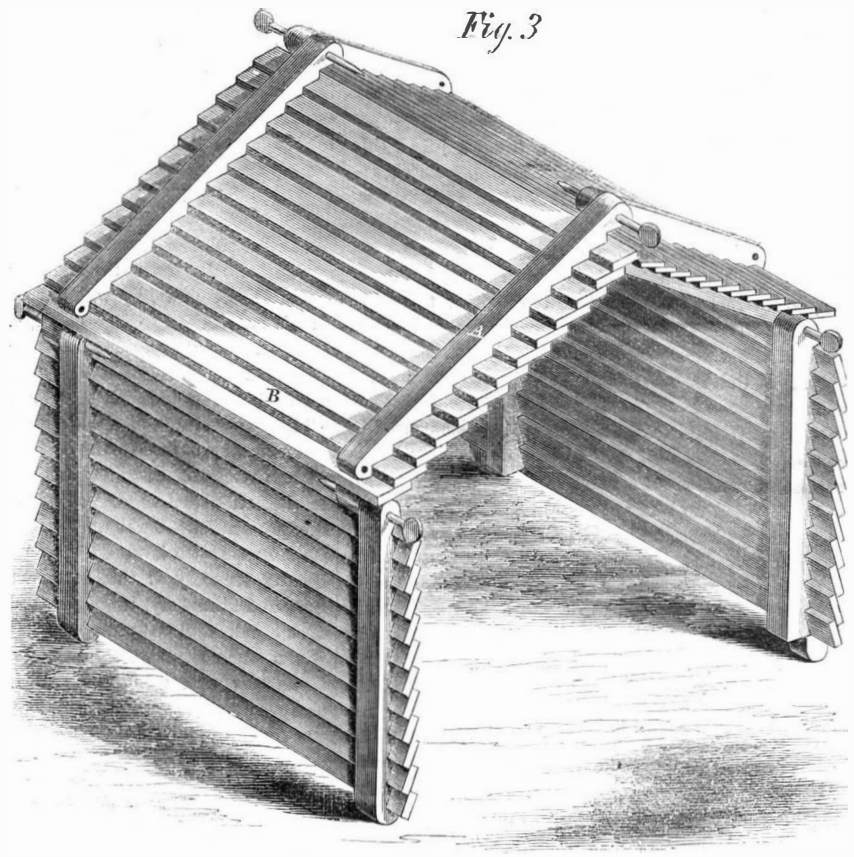


Fig. 3



FOOTE'S IMPROVED CONVERTIBLE FENCE.

ON PACKING METALLIC RODS.

The rods about steam engines which work through vessels or chambers containing steam, or liquids, are fitted with glands and stuffing boxes in the latter the packing is placed and the gland compresses it against the rod, so as to form a perfectly steam-tight and yet an easily-working joint. All this is well known to mechanics and engineers, but so many plans for and such erroneous ideas prevail respecting the performance of this duty, that we have thought a little discussion on the subject not inappropriate.

To judge from the number of scored, three-sided, bent and otherwise damaged piston and valve rods which we have seen at various times about steam engines, there would appear to be a necessity for some radical reform. To insure ease of action and economy of work, an engine should be very carefully packed, for the absorption of power from this source is enormous, in a large engine, and would scarcely be believed. We have seen engineers in charge of large low-pressure engines take a wrench three feet long in the handle, apparently made especially for the purpose, and heave down the nuts on the standing bolts with main force, merely in order to check the escape of a small jet of steam. Such practices are reprehensible from the fact that the expenditure

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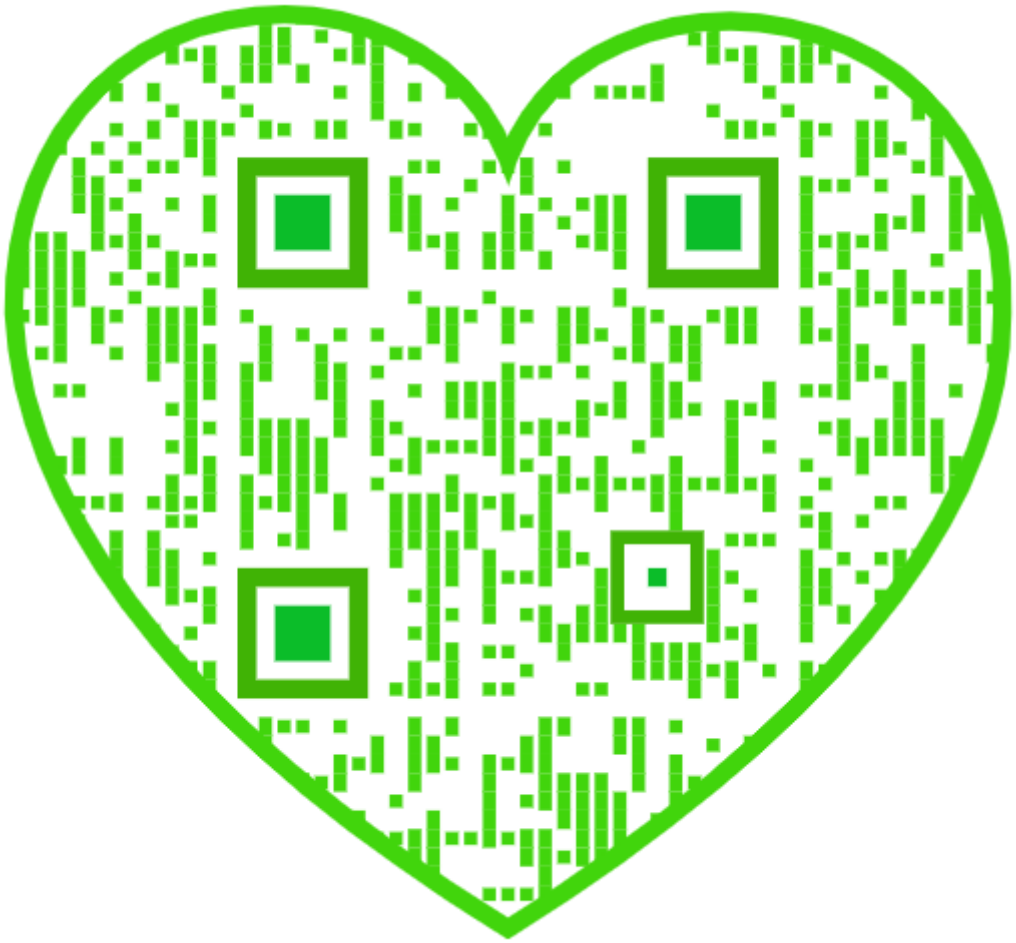

of force to accomplish the desired end is a proof that something is wrong, either in the design of the engine or the execution of the duty discussed. Faulty design may be briefly alluded to; where piston rods issue through cylinder heads the bottom of the stuffing-box, which is bored to admit the rod, is often made too large; there is too much clearance. No rule can be laid down for the size of the hole; engineering common sense must tell when the aperture is too large or too small; but from the first evil —too much clearance—many other evils spring. The packing is exposed to an unnecessary pressure of steam, which requires the enormous tension obtained by a long wrench to prevent leakages; it is sooner destroyed by being burned out; in consequence of the friction it necessitates a great expenditure of oil, absorbs power, and is also liable to be drawn in during the down stroke of the piston, and thus cause *thrums* and ravelings to get under the valves, or make dirt and grit in the cylinders. Unequal compression of the packing gland, caused by reckless screwing down of the same, together with the use of improper substances, such as old tarred rope, rough coir, or jute, also scant clearance in the cylinder head, and the absence of brass bushes in the same, is the cause of the scratched and damaged piston rods previously spoken of. When a gland is screwed up it should be carefully measured all round so as to insure perfect accuracy. A rule will not do; a pair of inside calipers should be employed and the engineer should set the gland as accurately as if he were about to re-bore it in the lathe; then it will be certainly right, and the piston rod will be clean, bright, smooth and true, as it should be.

A kind of packing in very general use is jute; this is a very good substance when braided into an eight-strand, square gasket, and well slushed with tallow. Some men use a central core of India-rubber, but this is not necessary, in our opinion; another kind used for packing small rods is a piece of square rubber, well overlaid with cotton lampwick; this kind has gone out of favor lately, probably from the high price of the material. Still another sort is a compound of india-rubber and brass wire gauze, for which a patent has been issued and which is highly spoken of. Metallic packing has also been used in connection with small rods with some success; india-rubber in the form of several layers of canvas coated with it, rolled up like a sausage, has also been employed as packing, and is, as we can testify, a most xcellent article.

It matters little what the nature of the material is, so that it is soft, close in texture, and uniform in quality, without knots or hard layers. Jute is very often full of grit and should be washed before it is used; care ought to be taken to keep gaskets off the floor when they are being braided, otherwise the rod will be scratched by the dirt accumulated. If the bottom of the stuffing-box is too large, from wear or design, take two turns of lead pipe, or such a length as will encircle the rod twice, draw a gasket through the bore of it, and drive the pipe down about the rod with a wooden drift; no other material than wood should ever be used in packing an engine, even to the mallet which drives the packing home. The packing should be renewed as soon as it is worn out, which can be told when the amount of pressure required by the nuts to preserve the joint is too great, and by leakage. When an engineer cannot screw down the gland on a 100 inch cylinder with a wrench twenty inches long in the handle, and by the force of one hand, or arm, there is some defect or fault that needs remedy. Of course far less power is required when the rods are smaller. Smooth and true rods and tight joints are the pride of every good engineer, and no pains should be spared to have every engine in such a condition.

The Ingenuity of the Japenese.

They are bold, courageous, proud, and eager after every kind of knowledge. A gentleman gave a workman a Bramah lock to put on a box; it was not discovered until some time afterward, and only then by the absence of the name, that the lock had been imitated, and, as the workman confessed, the original kept as a pattern. There is a steamer (paddle), which used three years ago to run between Nagasaki and Jeddo, 600 miles, whose engines and boilers, and every part of her machinery, were made of copper. She was built by a doctor in Jeddo, whose only guide was a Dutch description of a steam engine, translated into Japanese. An American gunnery officer was sent over in 1859, in the *Powhatan*, to teach them gunnery. He was courteously received, and then taken over the arsenal at Jeddo. He returned to the ship, saying "he had been taught a lesson instead of having to teach." In many of the arts and manufactures they excel us; their beautiful castings in bronze would puzzle the most experienced European workmen. Specimens have been shown to clever workmen who have confessed they could not imitate them. Though they do not know how to blow glass, there are samples which would rival in brilliancy any made in England. The French minister had a large ball, so clear, and of such perfect color, that he believed it to be a gigantic sapphire, and bought it for a good round sum. Their paper imitations of leather are perfect; their paper waterproof coats are bought by the captains of ships for their exposed boats' crews; their own clocks are good, and they have imitated our watches; they walk about with "pedometers" attached to their belts, and they are not backward in copper-plate engraving and perspective. Their china is far superior to the Chinese. The country abounds with coal, though they only use that found close to the surface; but even that, a sort of bituminous shale, is good. In gold and silver they could almost rival Mexico and Australia; iron, copper, and tin are found in profusion. An Englishman at Yokohama gave a Japanese a piece of English cotton shirting; in a few days the man brought back two pieces, and the former had much difficulty in saying which was his, so closely had it been imitated. In fact, they are a people who want for nothing but teachers.

Incendiary Cotton.

The Providence *Journal* speaks of a new danger to cotton factories from the use by the Government of a small steel point, by which the tag marked "duty paid" is attached to bales. Several mills have had a very narrow escape from fire, where these have got into the machinery. The Providence *Bulletin* says:—"The cloth tag or label, on which are stamped 'duty paid,' the weight of the bale and other marks, is connected by a brass wire about eight inches long, with a piece of steel shaped much like an arrow-head. This steel is driven into the bale, and the sharp point-like barbs at the base render it impossible for it to work out of the cotton. It thus holds the tag securely, if the brass wire does not break. But, unfortunately, in a great many cases the wire does break, and the piece of steel is left in the bale. When the cotton with this little steel point, which is narrow and less than two inches long and so escapes attention, is put into the lapper, the chances are that the steel strikes fire and ignites the cotton. Several cases of such ignition have recently occurred in this vicinity, and some mills have had narrow escapes. The Government officers should at once discontinue the use of this 'incendiary document.'"

[There is no necessity for using such a clumsy device; there are much better and far simpler ones invented and for sale.—Eds.

Nitrous Oxide Gas in Surgery.

Messrs. Editors:—It was not my intention to raise any discussion on the properties of the protoxide of nitrogen; but in the different letters which have appeared on the subject in answer to my communication no one has controverted the facts I advanced. I believe in the anesthetic properties of this gas and that thousands of teeth have been extracted from persons while under its influence; but I have said (and repeat) that its uses are dangerous. And my opinion is confirmed by the authority and experiments of Sir H. Davy, Dr. Pereira, Prof. Silliman, Reynauld, Thenard, Berzelius, Taylor, Nysten, &c. In the different answers which you have published not a word is said to refute them. I will remain an unbeliever and opponent to the uses of this gas until as good authorities as mine are produced; and until it is demonstrated that the delirium produced by this gas, when inhaled, brings no change in the nervous system of the person submitted to its influence.

Prof. H. Dussauce.

New Lebanon, N. Y., Dec. 2, 1863.

Squeaking Boots---a Crying Nuisance.

Messrs. Editors:—I wish to call your attention to what I consider a grievous annoyance, for which I suppose the bootmakers are responsible. I allude to the disturbance produced at lectures and other meetings (where silence is essential), by those who enter late with creaking boots. If they made other wearers of them as nervous as they do me when afflicted with a pair, I think some remedy would be adopted. It seems to me, however, that the gentlemen who come late into such meetings are entirely unconscious of the effect they are producing. Where the voice of the speaker is not very powerful, or he does not keep an even tone, and the closest attention is required from the audience, a creaking pair of boots often causes the loss of a statement or a link of an argument essential to the right understanding of the whole subject on hand. I want you to urge the adoption of a remedy on your readers. Bootmakers have told me that French chalk, or something like it, put between the soles, will prevent the evil. The last bootmaker from whom I purchased a pair having assured me positively that they would not annoy me in that way, agreed that if they did he would take the soles apart and apply the corrective. But when I came to wear them I found they screeched horribly; though as it was in a distant city that I bought them I could not call upon the seller to fulfill his agreement; so I determined to try some remedy myself, however desperate, to cure them. I had frequently tried saturating the soles with common oils, but though this mitigated the evil it did not cure it. It occurred to me that boiled linseed oil might do better. I accordingly applied it to the soles, keeping them quite hot during the process to enable them to absorb the more. I did not know but that the hot oil might be ruinous to the boots; but though I could not afford to throw away such an article, I was determined to sacrifice the boots rather than to be so sadly troubled with their noise. I saturated them accordingly with as much oil as they would absorb, and am happy to say that my experiment appears to have succeeded. I have worn them now for a number of weeks and they have been as quiet as the best-behaved boots ever made. I can march up the broad aisle of a church without disturbing one serious listener, or enter any other meeting as noiselessly as a lady in velvet slippers, and as far as I can see, the boots are none the worse for the application.

H. W.

[As this correspondent has provided his own remedy, we cannot do better than circulate it for the benefit of others.—Eds.

Morphia and Tincture of Iodine for Neuralgia

The following method of successfully treating that painful disease—neuralgia—is from the Dublin *Medical Press*:—"As a corollary to his remarks on the efficacy of tincture of iodine in the treatment of neuralgia, M. Bouchut adduced several cases, from which it appears that when the remedy in its pure state has proved unavailing, the pain sometimes yields in a remarkable manner, when a certain amount of morphia has been added to the tincture. In this instance the application is not merely counter-irritant; indeed in this respect the fluid would seem to have lost some of its power; its efficacy is chiefly due to the presence of the sedative, the introduction of which beneath the epidermis is facilitated by the tincture of iodine. Whatever explanation may be offered of the effects of this mode of treatment, its beneficial operation is an unquestionable fact, deserving of every attention. Thus, we noticed in M. Bouchut's wards, a little girl, who, while recovering from typhoid, became affected with neuralgia of the forehead and temple; pure tincture of iodine failed in relieving the pain; M. Bouchut ordered the brow to be painted over three times a day with a solution of half a drachm of sulphate of morphia in half an ounce of tincture of iodine, and a cure was effected in the course of three days. The professor adopted the same method of treatment in the case of a lady, aged fifty-two, suffering from interscapular neuralgia, symptomatic of chronic pulmonary disease. Morning and evening the sedative tincture was applied to these regions, and on the second day amendment set in, and the neuralgia was altogether removed on the fourth day."

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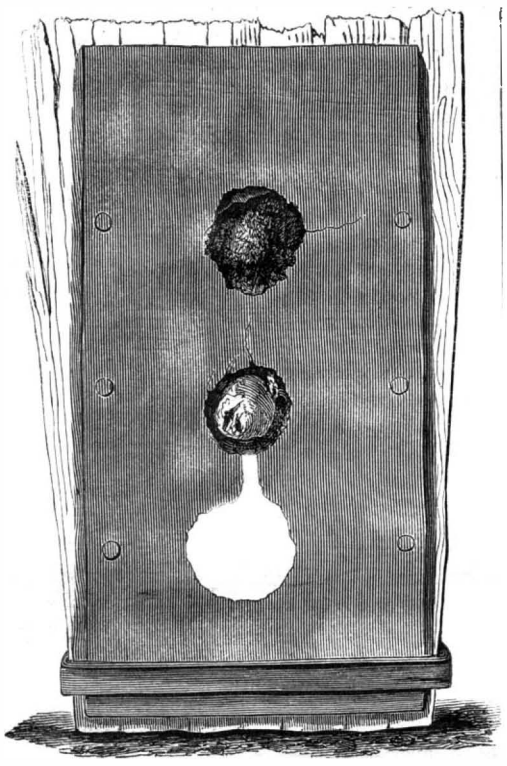
PRACTICE AT SCRAP-IRON TARGET No. 10.

WITH RUBBER ONE INCH THICK PLACED BETWEEN THE FRONT PLATE AND TIMBER.

[OFFICIAL.]

PENCOTE BATTERY, July 26, 1862.

This target was made in Washington Navy Yard, of scrap iron 4½ inches thick, backed by 1 inch rubber, 20 inches oak, and a 1-inch wrought-iron plate, all joined together by six 1¼-inch bolts, and clamped on the top and bottom with wrought-iron clamps, and set up firmly against a clay bank, with timber in the rear to prevent it from being forced into the bank as shown in this engraving.



DIMENSIONS OF PLATE.—8 feet 3 inches long; 4 feet 2 inches wide; 4½ inches thick. Gun, XI. inches, Charges, cannon powder, 1862. Projectiles, Cloverdale cast-iron solid shot. Primers friction tubes.

No. from Gun.	No. to-day.	Charge.	Weight of Projectile.	Insert'n.	Recoil.	Time Fired.	Distance to Bank.	REMARKS.
		lbs.	lbs.	in.	in.	P.M. h. m.	ft.	
9	1	30	167		3	11.45	88 3	Shot hit direct, throwing the target on its face.
140	2	30?	168			1.23		Shot hit direct, throwing the target on its face.

First shot to-day and first at plate struck the plate 20 inches from the left side of the target and 18 inches from the right side, throwing the target forward on its face. After a delay of about one hour and a half the target was placed in its former position. The ball entered the plate and passed through the rubber and lays imbedded in the plate, and first course of timber, with its rear level with the outer surface of the plate. The plate is indented on the right edge of the hole 1¼ inches, on the left edge ¾ of an inch, top edge 1¼ inches, lower edge 1¼ inches. The plate is not bent on the right edge of the target, on left edge ¼ inch. The plate is not cracked excepting directly around the shot hole, which is cracked very slightly. The bolts are all broken in the rear of the target, but on the face of the plate they appear to be good. The two last courses of timber are broken at the center from right to left edges of the target, and have sprung back from the first course 3 inches on the right edge and 2½ inches on the left edge. The first course of timber is somewhat shattered and thrown out on both sides of the target, right side 2¼ inches, left side 5 inches. Diameter of shot hole 12 inches.

The second shot struck the plate 17½ inches from right and left edges, and 10½ inches from shot hole No. 1. The shot threw the plate on its face as before, which occasioned a delay of two hours before it was placed in its proper position. The shot broke into pieces, which fell out when the target was thrown down, excepting a small portion which remained in the hole. This shot passed through the plate, rubber and first course of timber, and entered the second course, making a hole 16×13½ inches in diameter. The extreme depth of hole is 14 inches. The plate is indented on the right edge of the hole 1 inch., on the left edge ¾ of an inch, on the top edge 1 inch, on the lower edge 1 inch. The plate is bent on the right-hand side of the target ½ an inch, on the left-hand side ⅜ of an inch. Opposite the center of the shot hole No, 2 the timber (first course) has sprung out on the right-hand side 5 inches, on the left-hand side 6 inches. The back plate is forced back from the timber 3 inches at the center. The top clamp was broken in two places. No cracks are visible about the plate excepting those already mentioned. The rubber plate was furnished by Mr. Bennett, of New York, last May, for trial as above. Dimensions as follows:—8 feet long, 4 feet wide, 1 inch thick.

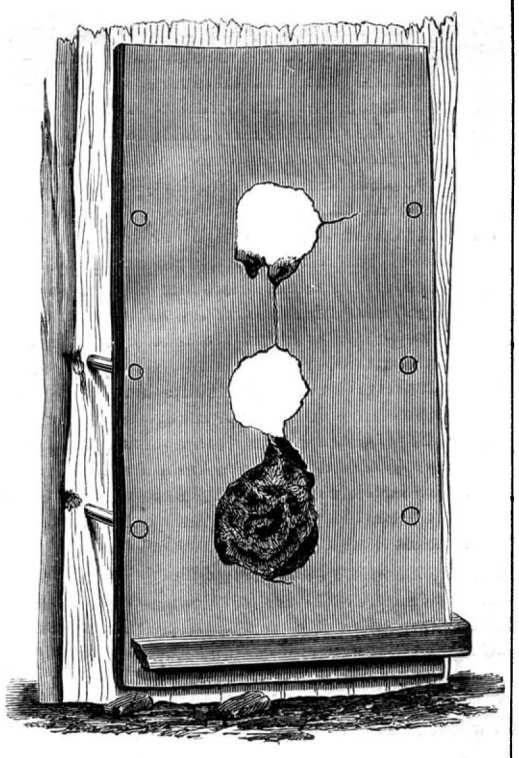
PRACTICE AT SCRAP-IRON TARGET NO. 10.

WITH RUBBER ONE INCH THICK PLACED BETWEEN THE FRONT PLATE AND TIMBER. JULY 28, 1862.

Gun XI. inches. Charges of cannon powder 1862. Projectiles, Cloverdale cast-iron solid shot. Primers, friction tubes.

No. from Gun.	No. to-day.	Charge.	Weight of Projectile.	Insert'n.	Recoil.	Time fired.	Distance to target.	REMARKS.
		lbs	lbs.	in.	in.			
141	1	30	169	106	3	10·31	88·3	Hit direct.

First shot to-day and third at target, struck the plate 18⅜ inches from right-hand side of target and 10½ inches from the left-hand side, and 5½ inches from lower edge of shot hole No. 1, passing through the plate, rubber and first course of timber. The shot broke into pieces, several of which were thrown in the rear of the battery, and several were laying in front of the target. The main body of the shot remains in the hole with its rear 9⅛ inches from the outer surface of the plate. The plate is indented on the top edge of the shot hole ⅞ of an inch, on the lower edge ½ an inch, on the right edge 1 1/16 of an inch, on the left edge ¾ of an inch. The plate is bent on the right-hand side 1½ inches, on the left-hand side 1⅝ inches. In the right-hand side of the shot hole No. 2, the plate is cracked from the edge of the hole 13 inches, on the left-hand side there is also one extending 10 inches from the edge of the



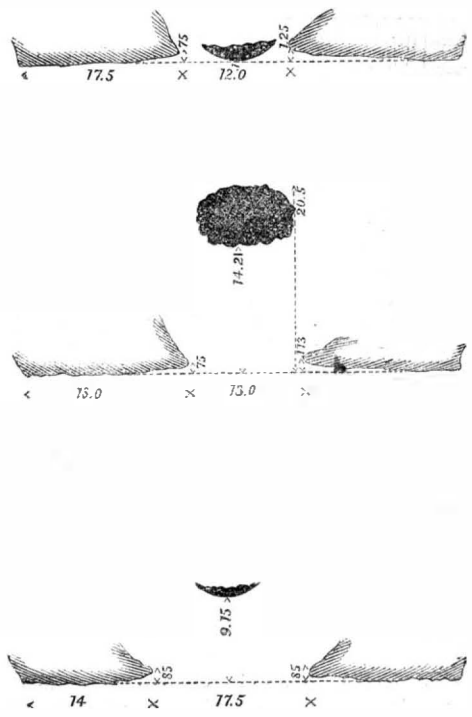
hole. Between the shot holes No. 1 and No. 2, there is a crack from edge to edge of the holes, and between shot holes Nos. 1 and 3 there is a piece broken out measuring 2⅞ inches at the top and 5⅞ inches at the bottom; on the right-hand edge of the plate is also a small crack. The lower clamp is broken. The first course of timber is completely broken up and thrown out at the sides, the second course is somewhat broken. The target was forced out 7 inches from its position, it being secured by a rope leading from a tree in the rear prevented it falling on its face as before.

BENNETT'S "RUBBER WITH IRON" TARGET.

ORDNANCE DEPARTMENT,
Washington Navy Yard, August 1, 1862.

In relation to the rubber furnished by Mr. Bennett, of New York, I have to report as follows:—A target was made of scrap iron 4½ inches thick, backed by 20 inches solid oak and a 1-inch wrought-iron plate of rubber 1-inch thick, placed between the 4½-inch plate and timber, all being secured by six 1¼-inch bolts, and clamped on the top and bottom with wrought-iron clamps, and set against a clay bank.

Gun XI. inches. Charges 30 lbs. cannon powder 1862. Projectiles, Cloverdale cast-iron shot of 168 lbs. Muzzle of gun from target 88·3 feet. On the 26th ult., two shot were fired at the target with result as follows:—



The shot passed through the 4½-inch plate and rubber, and penetrated the timber the same as previous shots fired at other targets made in the usual way without rubber, the only exception being that the target was thrown on its face at both fires.

On the 28th ult. another shot was fired with the same penetration. The target was thrown forward from its position 7 inches. A rope having been passed around the target and made fast to a tree in the rear, prevented it from falling, as before.

Whether the repeated falling forward of the target is to be attributed to an accidental coincidence, or is the legitimate result of the use of a material so elastic as rubber, I am unable to say.

THE MACHINISTS AND THEIR TROUBLES.

The disturbance in this trade, which lasted five weeks and over, has virtually ceased, and large numbers of the men have gone to work again. We are pleased to see that good sense has resumed its sway once more, and that the better portion of the machinists are attending to their business with all the energy they are possessed of. The advance has not been granted by the proprietors of the several shops, but they have agreed to satisfy the reasonable demands of the workmen, provided they resume work forthwith. In the Morgan Iron Works a number of men have been at work for two weeks past; the first week that labor was resumed, a number of strikers yet unemployed collected about the Works during the noon hour, with the intention of assailing those who had been at work. On learning this fact, Mr. George Quintard, proprietor of the Works, immediately sent out to the nearest restaurant and ordered dinner for all those who remained in the Works; this piece of generosity was highly appreciated by the mechanics.

It is a noticeable fact that while the proprietors have sternly refused to accede to advance the wages generally to 25 per cent, they have acted most generously toward unfortunate men with families and in many ways manifested their sympathy with their wants. It is understood that much suffering prevails among the families of many of the strikers.

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PRACTICE AT IRON PLATE TARGET No. 15.

WITH RUBBER PLACED BETWEEN THE PLATES AND TIMBER.

PENCOTE BATTERY, Sept. 4, 1862.

This target was made of two thicknesses of half-inch boiler iron put on in four plates, backed by 1 inch rubber and 7 inches yellow pine, and 3 beams running lengthwise of the target. The rubber was placed between the plates and timber ; all bolted together with eighteen 1¼-inch bolts, and the target set up firmly against a bank of clay at an angle of 15°.

DIMENSIONS OF TARGET.—Iron plates 8 feet long, 6 feet 8 inches wide, and 1 inch thick ; rubber 1 inch thick ; timber 7 inches thick ; beams 1 foot square.

Gun XI. inches, No. 214. Charges of cannon powder 1862. Projectiles, Cloverdale cast-iron solid shot. Primers friction tubes. Officer in charge, Lieut.-Commander Mitchell. Record by Carnigan. Hon. G. V. Fox, Assistant-Secretary of the Navy present.

No. from Gun.	No. to-day.	Charge.	Weight of Projectile.	Insertion	Recoil.	Distance to Target.	Time Fired	REMARKS.
		lbs.	lbs.	in.	Taut Breeching.	ft.	P.M	
149	1	30	168	106		74	3 15	
150	2	30	169	106			3 31	

First shot struck the plates 3 feet 3 inches from the right-hand edge, and 12 inches from the lower edge, tearing through the plates, rubber and timber, making a hole 3 feet 8 inches long, and mean width 8¾ inches. The shot passed off and penetrated the bank 11¼ feet from the outer surface. Angle of shot after leaving the target was 9°. The plate is indented at the right edge of shot hole half an inch, at left-hand edge 1 inch, at top edge three-eighths of an inch, at lower edge 1 inch.

The second shot struck the plates on the crack between the plates, and 2½ feet from the right edge, tearing through the plates, rubber, timber, and a portion of the beam, making a hole 4 feet long and mean with 10 inches. This shot forced the lower plates from the upper ones 3½ inches on the left-hand edge and over 1½ inches on the right-hand edge of the shot hole.

The shot passed off and penetrated the bank 15 feet. Angle of shot after leaving the target 9°

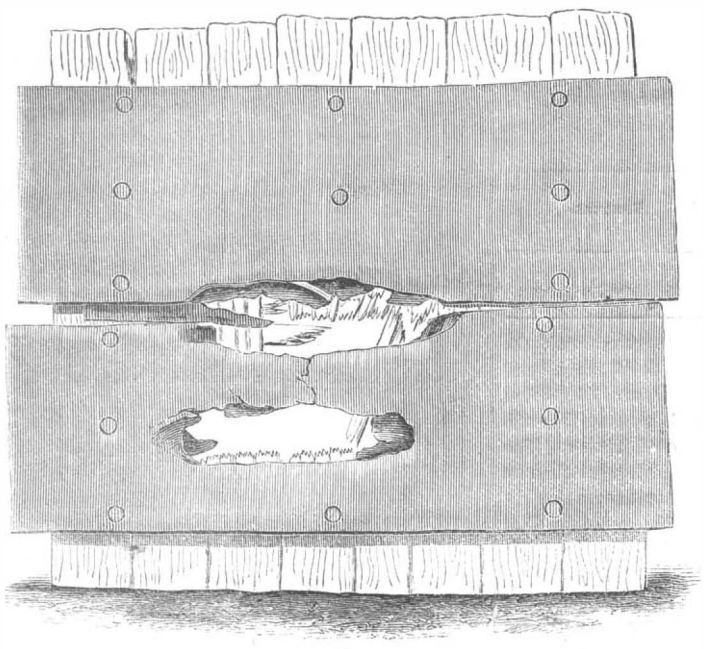
The plate is indented on the right edge of the hole 1½ inches, on the left edge 1 inch:, on the top edge ¾ of an inch, on the lower edge 1¾ inches.

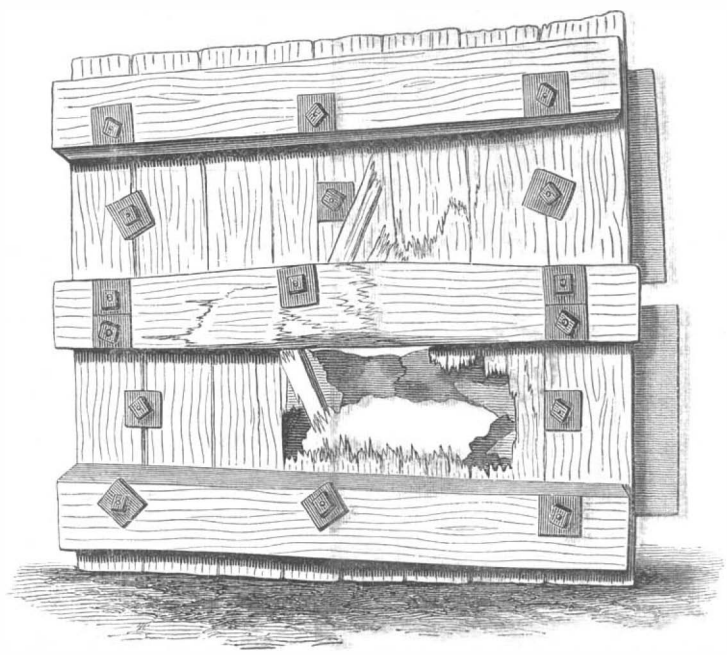
The plates are cracked from the lower edge of the shot hole No. 2 to the upper edge of shot hole No. 1.

The bolts appear to be in good condition on the face of the target, but it is impossible to ascertain if any are broken in the rear until the target is taken down.

Respectfully submitted,

(Signed) W. MITCHELL,
Lieut.-Commander, U.S.N.





Vessels for Carrying Petroleum.

Our cotemporary, the Pittsburgh *Dispatch*, in alluding to a recent article on the above subject in our columns, in which the use of iron barrels was suggested, says :—"The SCIENTIFIC AMERICAN, generally well informed on subjects of this kind, recommends, in a recent issue, the adoption of certain safeguards, which have already been in use for some time, but which, from the apathy of those engaged in the business, have secured but a partial introduction into the traffic. A letter in the same number enters very fully into the defects of common barrels, when used for carrying petroleum, and the means of preventing leakage, but the editor suggests the propriety of manufacturing iron cylinders for the purpose, and also refers approvingly to a plan used by Young, an extensive manufacture of coal oil, in Scotland, for the same purpose. The plan thus recommended consists in coating the interior of each barrel with glue, a substance not affected like resin varnishes by oil, and the SCIENTIFIC AMERICAN states that it has not heard of the plan having been used in this country."

We are also informed by the *Dispatch* that two shops in Pittsburgh have commenced the manufacture of iron casks, but that these have not yet entered into common use. Respecting them it says :—"The iron barrels compare favorably in every respect with those of wood, the former weighing about thirty-four pounds and the latter forty-five. They are made of corrugated iron, of the ordinary capacity of oil barrels, and without 'bilge' or swell. Two kinds are used, one resembling the old powder cask, with annular corrugations, the other formed with longitudinal corrugations, about three-fourths of an inch in breadth. The heads are brazed in, and if desired a rough wooden jacket is hooped on outside of the barrel to preserve it from contusion."

An acquaintance who has been engaged for several years in manufacturing coal oil and refining petroleum, has informed us that the casks for carrying the refined article are coated with glue ; but that the crude petroleum, if it contains water, will act upon the glue and soften it.

Recently a deputation of coopers waited upon the Health Committee of Liverpool (England) to express their disapprobation of a recommendation made by the Committee in favor of metal casks for the storage of petroleum, to the exclusion of wooden casks. The Chairman of the Cooper's Association asserted that wooden casks, when well made, were not inferior to those of iron. As coopers, they affirmed that wooden casks could be made quite tight, and they were prepared to furnish a cask filled with petroleum to convince the Health Committee of the fact. They were asked whether, even if the casks were made air-tight, the petroleum would not leak through the wood. Mr. Bennett, the Chairman, said this could not be, if the proper kind of wood was employed. The wood generally used was sometimes of indifferent quality. The deputation wished to impress upon the Health Committee the necessity of consulting those who had a practical knowledge of the subject, before passing any laws affecting the trade. Dr. Trench said that if the deputation could prove to the magistrates that wooden casks were sufficient to prevent either leakage or effluvia, they would be glad to save the trade the expense of providing casks of other material.

New Chemical Agent in Warfare.

Chloride of nitrogen will, it is said, soon be utilized as an implement of war. Its employment would seem likely to put an end to all war. Mr. Isham Baggs, an English chemist, in announcing his discovery, proposes to carry up his composition in balloons, and drop it from the air in the midst of armies and fortresses. "The very mention of this compound," he goes on to say, "as a proposed element in modern warfare, may possibly provoke a smile among chemists, who know that the most accomplished among their number would scarcely dare to experiment with in quantities larger than a grain of mustard seed, and even then at a respectful distance, and under guard at the moment of its detonation. And yet not one of those chemists will be bold enough to deny that with two or three chemically clean carboys of this terrible compound present in a city or fortress, however strong, the slightest cuttings of phosphorous or a single drop of olive oil coming in contact with it, would in one instant decide the fate of the place and its inhabitants." Mr. Baggs then proceeds to affirm that he has discovered a method of overcoming the contingent difficulties, and that he is able to manufacture this deadly material with perfect safety, and in any required quantity, and that it can be safely conveyed to its destination.

Reaping the Reward of Faithlessness.

The British Government narrowly escaped having the bitter cup of its policy in American affairs pressed to its own lips a few weeks since. The screw steam-corvette *Pelorus* took fire in the Bay of Biscay, and at one time the flames got such headway that the boats were lowered to enable the crew to save themselves. A large vessel under full sail being seen about five miles distant, three guns were fired and rockets and bluelights burnt, but without taking any further notice of these signals of distress than by the discharge of a single gun, the strange vessel held on her course. This apparent inhumanity is explained by the British Admiralty on the supposition that she was a Union merchantmen, who took the *Pelorus* to be a Confederate cruiser employing the ordinary devices to lure her into its clutches.

COTTON IN UTAH.—We learn from the *Farmer's Oracle* of Spring Lake Villa, Utah, that quite a good crop of cotton has been raised in that territory this year. Brigham Young has a cotton manufactory in operation, and another factory is soon to be erected at Springville. The quantity raised will average about five pounds for each inhabitant.

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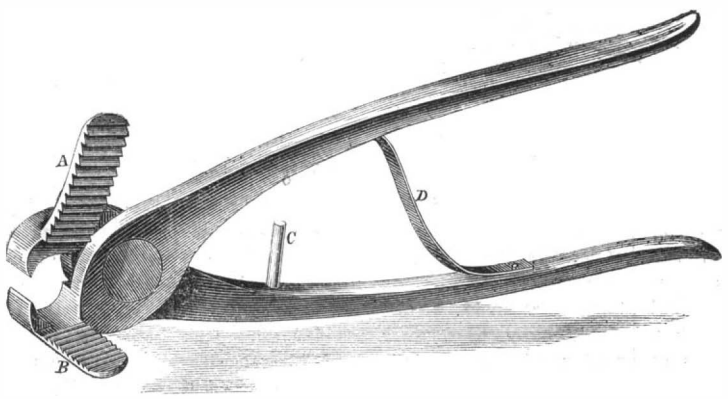
Improved Nail Clincher and Nippers.

By the aid of this instrument some parts of horse-shoeing are accomplished much more expeditiously than by the old methods. The object is to combine a pair of nippers and a clinching-iron in one tool, so that by the aid of them work may be done quicker and with more ease to the smith. On referring to the engraving it will be seen that the nippers are like all others as regards their particular duty, or office; to accomplish the clinching, however, the projections, A and B are fastened to one side of the nippers, the lower one being placed underneath the horse's hoof; the upper projection is brought down by the aid of the handles upon the point of the nail, and thus effectually clinched. There is a pin, C, inserted between the handles against which they strike when brought up, so that the sharp edges of the nippers are not in contact with each other and are thus preserved from injury. The object of the spring, D, is, of course, to force the handles apart; the serrated, or toothed faces of the projections prevent the tool from slipping when used. In regard to using the tool the inventor says "the nail is prepared just the same as if a hammer was to be used; in using the clinching projections, the left hand takes the same, or nearly the same position as in holding the common clinching-iron, the left forefingers being under the clincher, while the thumb of the same hand is placed against the upright part of the clincher to steady it to its work."

This invention was patented through the Scientific American Patent Agency, on Nov. 3, 1863, by E Warren, of Marshall, Mich. For further information address the inventor at that place. See advertisement in next number.



WARREN'S NAIL CLINCHER AND NIPPERS.

Formation of the Fatty Matter in Olives.

M. de Luca has reported to the Academy of Sciences at Paris the results of his elaborate researches on this subject. From the figures given in his table of observations, ranging from June to December, it appears that the weight of the olive increases with the progress of vegetation until the month of November; but that the stone is the first to be developed, the growth of which takes place in the early part of vegetation, during the months of July and August, after which it remains stationary; there being, in fact, in successive months no sensible variation of its weight. The pulp on the contrary, increases in weight continually until the complete maturity of the fruit. The quantity of water found in olives diminishes progressively at their maturity. Thus it is about 60 or 70 per cent in the first phases of vegetation, while it is only about 25 per cent. at the last period of the growth and maturity of the fruit. The sulphuret of carbon takes from olives several substances of a different nature; among which are coloring matters, especially chlorophyll, which gradually diminishes as the fruit approaches maturity. The fatty matter, on the contrary, which is found only in small quantity at the beginning of vegetation, increases as the plant grows, and is at its maximum when the olives are ripe and have completely lost all trace of their greenish tint. It is also remarkable that when the stone ceases to increase in weight the fatty matter in the fruit accumulates in greater proportion.

The Turko-American Bath.

The patient submits to an air bath in an apartment heated to 100° Fah., followed by another at 146° Fab., remaining in these hot atmospheres for half an hour or so, until profuse perspiration is induced. The seven millions of pores are thus made to open their portals, bringing the effete matter of the system to the surface of the skin; thence it is removed by soap and brush, in the hands of a vigorous assistant; closing with a warm water shower and a comfortable drying off between clean sheets and soft blankets. Nothing can be more luxurious than this process, while its medical uses are considered extensive and important. The Turko-American bath has been inaugurated by Dr. Shephard, at the Brooklyn Water Cure, 63 Columbia street.

Recovering Gold in Photographers' Baths.

A correspondent of the *American Journal of Photography* asks the following questions:—

"I have on hand a lot of old toning solution, the gold in which is precipitated with proto-sulphate of iron; how am I to work it up into chloride of gold?

"Of an ammonio-nitrate solution (¼ am.-nitrate) I wish to make a plain nitrate solution. Will you be so kind as to tell me the *modus operandi*?"

To which Professor Seely (the editor) gives the following answer:—

"Your precipitate from the toning bath is probably oxide of iron with a little gold in it. You can dissolve out the oxide of iron with sulphuric acid, and the gold will be left as a brown powder, which after washing in water may be converted into chloride in the usual way. The toning solution, before precipitation with iron, should be made acid with acetic or hydrochloric acid, in which case nothing but the gold is precipitated. Sulphuret of potassium auswers well for precipitating gold. In the last case the gold, after washing, should be heated to a red heat in order to drive off the sulphur, when it is ready for solution.

"By evaporating and fusing the ammonia nitrate, it will be converted into plain nitrate But the operation is so troublesome that we would not recommend it to a person who is not skilled in chemical manipulation. Perhaps the best way for you is to precipitate as chloride, reduce to metal, and dissolve in nitric acid."

Brains.

Our cotemporary, the *Tribune*, in publishing the very able official report of Gen. Halleck, of the operations of our armies for the year 1863, allows its types to perpetrate a very melancholy joke upon the General, wherein he speaks of the cumbrous "supply *trains*" that follow our forces. The types make him say—"nevertheless our *brains* have been very considerably reduced within the past year."

Gen. Halleck, while commanding the Mississippi Department, gained the soubriquet of "Old Brains," and it is barely possible that he has reduced the quantity somewhat, though we confess after reading this voluminous report that we cannot see it.

SUBSTITUTES FOR COTTON.—The Commissioners appointed by the Department of Agriculture for making investigations to test the practicability of cultivating and preparing flax and hemp as a substitute for cotton, will hold their adjourned meeting on the 24th of February. In the meantime all persons anxious to develop this subject are requested to forward samples of hemp and flax in different stages of preparation of the fibres and fabrics prepared by them, accompanied by statements of the various processes used, and the cost of production in each case; also descriptions of the kinds and cost of machinery used, where made, &c., together with any and all information which may be useful to the Commission.

A CURIOUS accident occurred last month on the Central Railroad, near Oriskany, N. Y. The boiler of the locomotive exploded while the train (a freight) was under full headway. It was thrown some fifty rods from the track into an adjacent field, destroying fences, &c., in its course. The fragments of the locomotive flew in every direction, severely wounding the fireman, conductor, and one or two others. The accident is considered one of the most remarkable on record.

Rebels and Repeating Rifles.

A soldier-correspondent who writes us from Virginia some very friendly remarks concerning the value of the SCIENTIFIC AMERICAN to soldiers, relates also the following anecdote concerning the Spencer rifle; the rebels have a wholesome awe of this weapon as will be seen from the account appended:—

"After the battle at Gettysburgh whilst our cavalry were pursuing the rebels, our regiment was employed as skirmishers; some of our boys got into a mill, the rebels holding a stone-wall opposite; these hearing our guns go off, would rise up thinking they would find us unloaded, but would fall back carrying rather more lead than was agreeable. The 'Johnnies' couldn't stand this long and retired. Shortly after this we took a captured officer across this part of the field to the rear, when he saw his men lying there he began to complain bitterly against our barbarity; he was asked to explain, when he pointed te his dead saying: 'almost all are shot through the head'—implying that they had been murdered after surrendering'; but when he was shown one of our rifles he only wondered that more were not shot.'

One of our rebel prisoners relates the following:—'I was under good cover, but exposing myself was fired upon; thinking I had drawn their fire I stepped out when another ball just missed me; I thought perhaps that they had a double-barelled gun, and I had him sure. I stepped out again when another ball grazed me; then I thought there must be two in front of me. I then stepped entirely from under my cover, determined to have my chance for a shot, and was wounded by a fourth shot. While I was lying there I heard three more shots in rapid succession from the same gun, when our boys fell back and yours came up and sent me prisoner to the rear,' said he 'there's no use fighting against such guns.' It took our boys but a short time to learn to use them. They played this ruse upon the rebels quite successfully: when they came up where they knew the rebel line of skirmishers were within good shot they would fire once at random, when Mr. Reb rose up in sight he would get another shot at something he could see and feel.

One day as our line of skirmishers were advancing one of the Johnnies yelled out—"hello, Yanks, have you got them d—d guns loaded to the muzzle again;" whilst the cavalry was picketing along Robertson's river skirmishing was frequent along the line, but when our regiment took its turn we exchanged but a few shots with them when they offered the following proposition:—'Say there, if you'ns won't shoot wee'ns won't shoot,' and peace existed along the lines as long as our regiment remained."

FLAX COTTON.—The Cleveland (Ohio) *Herald* states that B. O. Warner has built a mill at Toledo, for preparing flax cotton at the rate of 2,000 pounds per day. It is prepared for an Eastern Company engaged in the manufacture of satinets.

IT is stated in a communication upon "Rifled Ordnance" which appeared in a recent issue of the SCIENTIFIC AMERICAN that "for guns exceeding 4½ inches caliber from ½ to 1¾ diameter is preferred, &c." the line should read "from 1½ to 1¾ diameter," &c.

A correspondent sends us some remarks about rolled and hammered bayonets. The letter is unsigned; we cannot give attention to anonymous communications upon any subject.

PUNCH'S joke about brushing hair by machinery, which looks like no joke to the patronizer, is really a stern fact, as such a machine is in operation at a famous hair-dresser's in London.

THE following is deceptively promulgated under the head of zoologscal information:—The black tapir is found in many districts of Summatra, but the *red tapir* is found chiefly in the District of Columbia."

NAPOLEON said that "bayonets think." Few thinkers have so much keenness, point and penetration as they.

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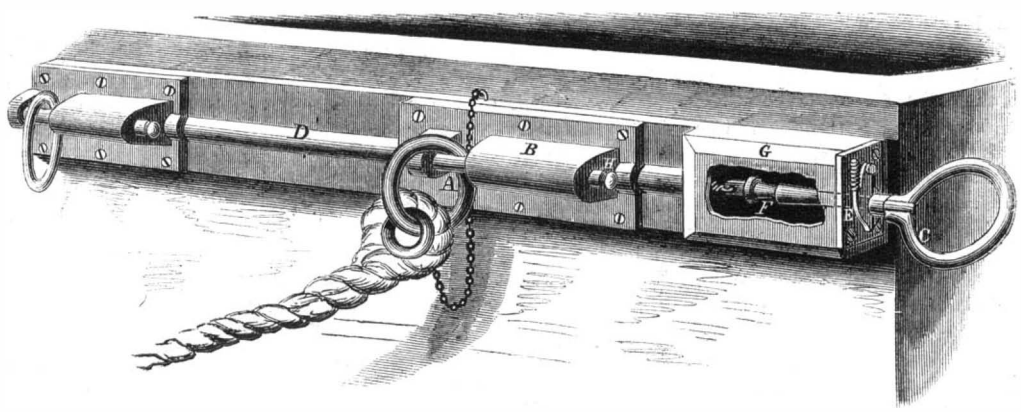
Improved Hitching Bolt.

The old idea that it is impossible to remove a horse from fire when once fascinated by it, may have had its origin in the unwillingness of some responsible individual to undertake the rescue of beasts so situated, and so ever afterward it became a proverb; doubtless like many others, without foundation. Of course, horses cannot get away when they are tied, and by the time the halter is consumed the animal is in no condition to leave. The invention herewith illustrated is designed to obviate this evil, and also others which attend unhitching horses, such as those which arise from entering the stable of vicious animals, and in short, to provide a secure and safe attachment to which horses may be tethered, without liability of accidental detachment. These objects are all obtained in the bolt herewith illustrated; the engraving explains itself. The invention is merely a stout bolt, A, provided with a spring in the case, B; these bolts are all connected with a handle, C, by a wire which runs through the groove, D; when the bolt is drawn back the halter may be slipped over it, and is then held in place when the bolt flies back to its seat as shown in the engraving. If it is necessary, the handle, C, may be kept extended. This is accomplished by the spring-catch, E; it being made in two parts which embrace the rod of the handle, C; when the catch is pulled open the rod is drawn out until the recess, F, comes outside of the case, G; the catch then falls into it, holds all the bolts open and the horses are released. Any number of bolts may be fastened thus and worked by one hand, or each bolt can at any time be worked separately by pulling on the knob, H; thus avoiding the necessity for going to the principal handle, which is perhaps situated at some distance.



KLOENNE'S HITCHING BOLT.

The patent for this invention was procured through the Scientific American Patent Agency, Oct. 27, 1863. For further information address Julius Hurxthal, 23 William street, N. Y.

Explosion of Naphtha.

At an inquest lately held in England, a grocer testified that while he was pouring coal oil from a barrel into another vessel, a lighted candle being within three feet, he saw a small blue flame run along the outside of the barrel to the bung hole. Of what followed he was ignorant. But it appears that a terrible explosion ensued, for the grocer was pitched up into the street, insensible; his house was set on fire, the upper apartments quickly filled with a dense black smoke, by which three of his children were suffocated, while his wife and three other little ones barely escaped with their lives. This explosive stuff was found to be a very light coal oil, or naphtha, the vapor from which is highly explosive.

Loss of an Iron-clad.

The *Weehawken* recently went down at her anchorage in Charleston Harbor. This was caused by great neglect on the part of those in charge of the battery. The *Weehawken* was very low in the water, so much so that her deck was submerged continually by the seas; during a severe gale the forward hatch was left off the hatchway, and the water poured down in a continuous stream, without those on board being aware of the fact until it was too late. There were some thirty persons, engineers and others, lost in the *Weehawken*; she was a monitor battery, and quite new. The accident is very much regretted; it was one that might have been avoided by proper care, as all the other monitors in the vicinity rode out the gale unharmed.

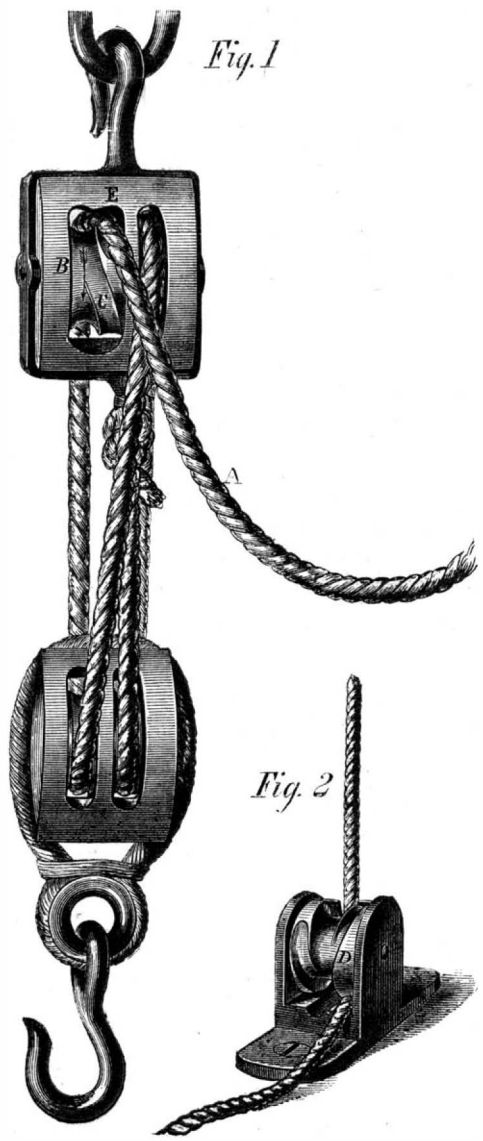
THE 22-tun gun of Sir William Armstrong requires a crew of twenty men to handle it; the 20-tun gun in the monitors can be worked by three, or at most four men—a slight difference!

Nitrous Oxide.

Concerning this gas, over which there is now so much discussion, the *American Druggist and Chemist's Circular* says:—"We have noticed the prominence which has lately been given by dentists throughout the country, and by a number of 'Professors,' to the inhalation of nitrous oxide gas as an excitant and an anesthetic. From what we have seen of the apparatus and materials employed by parties here, it is the old laughing-gas of Sir Humphrey Davy again galvanized into life and notice; and since, in the hands of dentists, the effects, as now described, are so much at variance with what is generally stated about them in the text-books, we must conclude that the gas is either more thoroughly purified and free from noxious admixtures, or that it is diluted with air or some other gaseous body, and thus divested of some of the unpleasant effects of the ordinary nitrous oxide."

PALMER'S PULLEY BLOCK.

The engraving published herewith represents an ingenious method for taking up the slack of a "fall," or rope, when attached to a block or pulley. By this arrangement one man can do as much work as two with the ordinary block and fall, as there is no duty or work required but simply that of hauling or pulling on the rope. It is well known that in the act of hoisting weights by the means of tackle, it requires much exertion to prevent the weight from falling back in the interval of hoisting; this labor is dispensed with in the pulley block shown in the engraving. When the workman hauls on the rope, A, the weight is hoisted as with all other pulley blocks; instead, however, of taking a turn around the nearest post to keep the "slack," the peculiar construction of one wheel, B, in the block, takes all the strain itself and leaves the workman fresh, or free, from the exhausting labor of holding back against the tendency of the load to drop. It will be seen that this is accomplished by simply cutting a side groove, C, beginning at the same depth as the true groove of the pulley (shown by the arrow in Fig. 1) and running out to nothing, ending in a flat surface or circumference as at D in Fig. 2. When, therefore, the slack is to be taken in the workman merely diverts the fall, A, a little to one side, when it takes the false groove, C, runs up in it and jams between the block and wheel; as at E, in Fig. 1. In Fig. 2 the same operation is shown and this variety in the form of the pulley may be substituted for the ordinary snatch-block, or for the cleat, so much used on shipboard. This device is a very convenient one for the purpose mentioned previously, as every practical man can readily see; it dispenses with labor, and completely secures the ends desired. The block and fall, with load attached, can be left suspended for any length of time with this arrangement. The pulley blocks, in other respects, are not peculiar.



This invention was patented on Nov. 1, 1859, by Isaac E. Palmer, of Montville, Conn. Patent reissued through the Scientific American Patent Agency, on Sept. 8, 1863.

The patent is for sale on very favorable terms, as it is out of the patentee's usual business. For further information address Isaac E. Palmer, care of H. F. Palmer, No. 28 Warren street, N. Y.

Quite Novel.

Army correspondents make a great many funny mistakes when they attempt to write about military or mechanical subjects; we think the following incident, however (which the correspondent who sends it says is "a novel effect") is the most startling and surprising one that ever came under our notice. Mr. Whitworth may learn something, it seems, even from an army correspondent. We quote:—

"After a few discharges the gun was found to have lengthened two inches. This was caused by the immense strain upon the piece in projecting the ball; the resistance offered by the rifling causing the immense mass of metal to draw out as if it had been a piece of iron wire in process of manufacture."

Copper-coated Boiler Plates.

An English boiler-maker has taken out a patent to protect boiler plates from damage by furrowing or corrosion. This occurs chiefly in the neighborhood of the seams and rivet holes; these parts are therefore covered with copper, either in thin sheets or by deposit, for the purpose set forth. This remedy is worse than the disease it is intended to cure, the contact of the two metals inducing galvanic action which will deteriorate the plates more rapidly than furrowing.

Gen. Burnside, by a rapid flank march from Knoxville upon Cumberland Gap, cut off the retreat of the rebel garrison which was thus compelled to surrender. His infantry made a forced march of sixty miles in fifty-two hours. His defence of Knoxville against the besieging forces of the rebel Longstreet, is one of the most heroic achievements of the war.

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The Scientific American.

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VOL. IX, NO. 26 ... [NEW SERIES.] ..... *Nineteenth Year*

NEW YORK, SATURDAY, DECEMBER 26, 1863.

1864.

We shall mail to each of our subscribers a copy of our annual prospectus for 1864, and would remind them that we furnish the SCIENTIFIC AMERICAN to clubs at greatly reduced rates.

For 20 names sent in a club the subscription price is $2 per annum. If it is found impracticable to get up a large club, we would remind each and all of our generous patrons that if they can each add a single name to our list, the mathematical fact is made perfectly plain that our list will be doubled. We have no claim upon any one of our subscribers. We furnish them the paper and they pay for it according to our terms. Nevertheless it would gratify us exceedingly if they would stir about a little and induce some of their clever neighbors to join with them in taking the SCIENTIFIC AMERICAN for 1864.

Go and remind your neighbor that the long winter evenings ought not to be wasted away by unprofitable dozing in the chimney corner, and that while he is toasting his toes around the blazing hearth, he ought to be storing his mind with useful knowledge, such as is always found in the SCIENTIFIC AMERICAN. Show him one of your numbers and tell him that he can get fifty-two of them for only $3, of equal size, each containing a varied assortment of the most interesting information; and we will guarantee that unless he is a miserable miser he will pull out the old suet-skin and hand over the appropriate greenbacks.

We tried this the other day in Norwalk, Conn., and got an honest carpenter to chalk over his $3; and he growled considerable because some one had not got him to do the same thing before. Certainly there is no harm in trying what can be done by thus coaxing him.

ANOTHER YEAR CLOSED.

Like the weaver's shuttle speeding along in the loom, so our days and years sweep rapidly past, and thus our web of life is woven. During periods of great excitement, when mighty events crowd swiftly upon each other, the mind fails to take cognizance of the fleeting moments. We can scarcely realize the fact that another year in the life of the SCIENTIFIC AMERICAN has been measured out, and that this number completes volume nine of our new series. For about three years now our nation has been engaged in the most momentous civil war on record, and the struggle has been increasing in magnitude and importance. Originating in the unreasonable disaffection of ambitious and selfish men, it was forced upon the legal rulers and loyal people of the land, who accepted it with hesitation and sorrow in view of the afflictions which would naturally attend it. But amid the grief of thousands whose homes and hearts have been made desolate, the nation has cause for being devoutly thankful at its unexpected and surprising prosperity. Civil war usually crushes out useful industry, and in every such case the people become impoverished. But every attempt to carry the conflict into the loyal States has been frustrated, and the armies of the Government have pushed back the insurgents, and have also been successful in reducing extensive territories to legal authority. Such results are very encouraging, auguring well for future success in ultimately subduing the rebellion and conquering obedience to law and order.

Amid this great war the people of the loyal States have been permitted to pursue their usual avocations in peace. No better evidence of material national prosperity can be adduced than the general and active employment of the people in useful industry, which is the true "Wealth of Nations." There has been plenty of employment for all, and the wheels of commerce have rolled on with unexampled speed and success. New sources of industry have been developed, and old branches have received a marked impetus, so that our industrial products have exceeded in quantity those of any similar period in the history of our commonwealth. Herein lies the great strength of our country, for the productive power of a nation is the true measure of its strength.

No better proof can be adduced of our progress and improvement in the industrial arts than the achievements of inventors. The number of patents issued in our country during the year closing with this number, is 3,746, against 3,220 for the same period in the previous year—being an increase of no less than five hundred and twenty-six! Every department of industry has been benefitted by these improvements, and the numerous illustrations of new inventions which have appeared in the columns of the SCIENTIFIC AMERICAN afford cheering evidence of great progress made in the useful arts during the past year. A great scarcity of labor has necessitated a demand for new inventions to abridge human toil, and inventors have been more than usually successful. The demand for labor, however, is still urgent, and inventors never had a more favorable prospect for obtaining lucrative employment in devising new labor-saving mechanism. In conclusion, we can heartily join the President in the introductory lines of his late message:—"Another year of health and of sufficiently abundant harvests has passed. For this, and especially for the improved condition of our national affairs, our renewed and profoundest gratitude is due."

THE PEOPLE'S COLLEGE.

The Trustees of the People's College have issued an address respecting its present condition. It is located at Havana, N. Y., but the main edifice is not quite completed. It is 216 feet long, 52 feet wide, five stories high above the basement, and there is a rearward projection from the center erected, 70 feet long by 64 feet wide, which will soon be ready for the students. The college farm consists of 200 acres, and upon this and the edifice about $100,000 have already been expended. In 1862, the State of New York gave to this college an annuity of $10,000 for two years, chiefly for the support of the Professors, defraying the expenses of indigent students, &c.; and in July 1862, Congress granted 99,000 acres to the State for the establishment and maintenance of such an institution; similar grants for like objects having been made to other States. The edifice when completed will cost $175,000; it will have a chapel, 220 rooms for students, a culinary department, and rooms for the steward. The first term of the college will commence on Tuesday, April 7, 1864, and will continue to the 15th of July. The terms of admission are as follows:—

CLASSICAL COURSE.—Candidates for admission to this course must sustain a satisfactory examination in English grammar, geography, and arithmetic; in the Latin grammar; Cæsar's commentaries, six books of Sallust; Virgil's Æneid, six books; Cicero's Select Orations; in the Greek grammar and Greek reader, or in an equivalent amount of classical Greek.

SCIENTIFIC COURSE.—Candidates for admission to this course must sustain a critical examination in English grammar, geography, and arithmetic.

PROVISIONAL OR SELECT COURSE.—For admission to this course, the candidate must be prepared to pursue, with profit to himself and without hindrance to others, the studies of his choice.

Candidates for admission to either of the above courses must be more than fourteen years of age, and must furnish satisfactory evidence of good moral character.

No less than twenty-two different branches of education are to be taught at this college; comprehending natural and revealed theology, intellectual and moral philosophy, jurisprudence and political economy, logic, history, rhetoric, anatomy, physiology, geology, chemistry, languages, agriculture, engineering, military science and tactics, &c. The course of the college to be pursued, to entitle students to the degrees of Batchelor of Arts and Batchelor of Sciences, will be four years; but a student may enter the college with the intention of pursuing a select course of study, and when this is completed and he passes a good examination he will be entitled to a diploma. The expenses of a student for tuition, board, and room rent, will be $120 per annum, paid in semi-annual instalments in advance. Students will be allowed compensation for labor, which they may apply to the reduction of their expenses.

This institution embraces the object of useful labor combined with a superior education. Those students who intend to pursue an agricultural course, will labor on the farm; those intended for a mechanical trade will labor in some of the workshops. It is provided in the charter of the college that its students shall labor on the farm or in one of the shops from two to four hours daily, during five days of the week—a rule that should never be relaxed.

The institution was projected about sixteen years ago, by members belonging to the Mechanics Mutual Protection, an order which has ceased to exist; but we still recognize the names of two of its old members in the Board of twenty-four Trustees. The objects of this college are good, but the educational branches laid down in the programme are too numerous, and there are too many lawyers and too few farmers on the Board of Trustees. At first it was intended for the practical education of young farmers and mechanics.

The President is Amos Brown, LL D., and the Governor and Lieutenant-General of the State, with the Speaker of the Assembly and Superintendent of Public Instruction are *ex officio* Trustees. The Treasurer is T. L. Minier, Esq., Havana, N. Y. Eight professors have been elected to the different chairs, and we suppose they will enter upon their duties at the first term next spring.

CONCERNING STEAM BOILERS.

We have in previous numbers of the SCIENTIFIC AMERICAN frequently called the attention of engineers and manufacturers to the condition of their steam boilers; for we have felt, and still feel, that in too many cases they are neglected and overlooked. If there is any department where false economy is out of place it is certainly about a steam boiler; and by this we mean a disposition to let repairs go until a more convenient season, or as a person once said in our hearing, "till it gets so that it is worth mending;" this is false economy. The tailor's proverb about "the stitch in time" is eminently true of steam and the apparatus driven by, or the vessels containing it. All the leaky rivets (if any) should be driven tight, slack braces set up to their duty, seams calked where they require it, ashes kept away from water-drip when it falls on the sheets, clinkers prevented from forming on grate bars (where anything like decent coal is provided, no excuse should be received by manufacturers for this neglect), safety valves overhauled and put in working condition (too many of them are mere percussion caps, so to speak), flues swept at least once a week, ashes and soot kept out of the smoke box; every ounce of it is a non-conductor that robs the boiler of its rightful heat. In short, every detail and appurtenance of a steam boiler requires conscientious, thorough, and continual supervision; then there will be fewer lives lost, less property destroyed, and a better class of engineers and manufacturers generally. That is the true way to raise the wages of engineers and make business pay; elevate the standard of the services rendered, and, our word for it, manufacturers will accede to all reasonable requests.

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The terrible effects of carelessness are too apparent when steam boilers explode, and blow to the four winds of heaven all that a man has been able to accumulate in a lifetime of hard labor. See to it, then, you manufacturers, and you, engineers! that there are no half-way measures adopted; that no "penny wise and pound foolish" policy prevails; keep the boilers in the best possible repair and condition; buy none but the best fuel; hire only capable, conscientious, and *sober* men to oversee them; and the rate of insurance will be lower, higher profits will accrue, and steam power be rendered what in fact it is—an energetic, easily-managed, and economical servant.

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list :—

Port Stopper.—The immense weight of which it is necessary to make the port stoppers of iron clad, turreted, or other vessels intended to be invulnerable, to give them the requisite power of resistance to projectiles, has rendered them, as hitherto applied, extremely difficult of operation, owing to the great amount of power required to move them : and the methods of applying them hitherto adopted have rendered them liable to be so bound or disarranged by the blow of a shot as to render it impossible to operate them. The object of this invention is to obtain for a port stopper the requisite power of resistance, and yet enable it to be worked by the application of a very small amount of power, and to prevent its being seriously bound or obstructed in its action by any displacement or disarrangement which is likely to be produced by the blow of a projectile. With a view to accomplish the above object, this invention consists in the construction of the stopper in the form of a crank ; also its arrangement to turn about an upright or nearly upright axis situated some distance within or behind and opposite, or nearly so, to the center of the port or embrasure; and further in the attachment of the bearings in which the journals or pivots of the port stopper turn, to supports which are detached from the wall of the turret or other defensive structure in the immediate neighborhood of the port. John Ericsson, of New York city, is the inventor of this improvement.

Registering Marine Log.—The object of this invention is to register the direction of the distances run by a ship or other vessel, as well as the distances themselves ; and to this end it consists in the combination with an apparatus substantially like what has been heretofore known as the registering marine log, or "patent log" of a compass of peculiar construction, and an apparatus connected with the registering mechanism for dropping pellets into a compartment of the said compass whenever a certain distance has been made by the vessel to which the log is applied. Alexander Gordon, of New York city, is the inventor of this improvement.

Machine for Exercising the Human Body.—The object of this invention is to obtain a simple and efficient machine for exercising certain portions or members of the human body, designed more especially for the benefit of persons afflicted with dyspepsia, liver complaint, &c. The invention consists in the employment or use of a lounge provided with an adjustable section for the purpose of adjusting the patient in the proper and desired position, and using in connection with said lounge a pair of reciprocating pads arranged and operated in such a manner as to effect the desired end. Dr. Charles F. Taylor, of No. 159 Fifth Avenue, New York, is the inventor of this improvement.

Brewing With Maize.—It is understood by persons that in order to effect the dissolution and saccharification of barley-malt, a temperature of about 160° to 168° Fah. is required, and that when the temperature exceeds 170° the saccharifying property of the malt is killed and the malt is rendered useless. The starch of Indian corn or maize, however, cannot be perfectly dissolved at a temperature lower than that of boiling water, and the attempts heretofore made to treat barley malt and maize mixed together in the same mash tub have failed, because the temperature required for the saccharification of the malt is not high enough to dissolve the starch of the corn, and very little benefit is derived from the use of the corn ; or if the temperature is raised high enough to dissolve the starch of the corn, the barley malt is killed and the whole process is a failure. These difficulties are overcome by the present invention, which consists in disclosing the starch of Indian corn and preparing the saccharified extract from corn mixed with barley malt, all in one and the same vessel, simply by sacrificing a small quantity of barley malt, or if desired the process may be executed in different vessels, and from 40 to 50 per cent of corn can thereby be mixed with barley malt, and great economy effected in brewing malt liquors. Ludwig Haecker, of Altenburg, in the Kingdom of Hungary, is the inventor of this improvement, and further information may be obtained of Escher & Co., 9 Murray street, New York.

ISSUED FROM THE UNITED STATES PATENT-OFFICE

FOR THE WEEK ENDING DECEMBER 8, 1863.

Reported Officially for the Scientific American.

*** Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

40,803.—Composition for Covering Hams.—Henry A. Amelung, New York City :

I claim a covering for ham or other meat, consisting of paper or cloth soaked in a solution made of the ingredients herein specified and mixed together in about the proportion and substantially in the manner described.

[This invention consists in the application to ham or other meats, of tissue paper or cloth soaked in a suitable solution in such a manner that all parts of the ham or other piece of meat are perfectly covered and protected against the injurious and decomposing influence of the atmosphere. This covering is much cheaper than that generally used, and by its use a great saving in the weight of the hams is effected.]

40,804.—Generating Gases for Heating and Illumination.—Jacques Arbos, Barcelona, Spain :

I claim, first, The formation of a gaseous compound, as hereinbefore described, and the mixing of the same with gas, arising from the distillation of coal, or from the decomposition of oils, resins tars, or fatty bodies to manufacture gas suitable for lighting and heating.

Second, The apparatus for generating the gaseous compound, constructed and acting substantially as herein before described and illustrated in the accompaning drawings.

40,805.—Gas for Motive Power.—Jacques Arbos, Barcelona, Spain :

I claim, first, The production of a gaseous mixture composed of oxide of carbon of hydride of azote and of a small proportion of carbonet of hydrogen, said compound being combined with air and used as motive power, in the manner hereinbefore set forth.

Second, The apparatus for generating the gaseous mixture to be used in the manner substantially as hereinbefore described and illustrated in the accompanying drawings.

Third, The generation of steam by the heating of water in the jacket of the cylinder of the said gas engine and in a boiler surrounding the furnace of the said gas generating apparatus, substantially as hereinbefore described.

40,806.—Snap Hook.—Samuel Babcock, Middletown, Conn.:

I claim the improved manufacture of a snap hook as made not only with its eye in one piece with its hook and with its tongue not only provided with lips to embrace the shank of the hook and form a joint therewith, but with a recess arranged substantially as described, and for the purpose of carrying a straight or leaf spring disposed within such recess, in manner as hereinbefore explained.

40,807.—Skate.—Wm. Bailey, Utica, N. Y.:

I claim, first, The construction of the clamps with the pendent lips, connected and arranged as I have described, and the mode of operating them which I have described.

Second, I claim the construction and use of the skate runner of the flattened form with the elevated edges spread apart for greater base, and for other purposes as described, in combination with the deep wooden stock with bearing sheaves as described, and for the purposes described.

Third, I claim the mode of fastening the runner to the wooden stock, by means of the dove-tail device at the toe, as described; and the heel pin passing directly through the runner at the heel, with head countersunk, in the manner described and for the purposes described.

Fourth, The whole being constructed, combined, and arranged substantially in the manner herein set forth.

40,808.—Telescope.—Wm. H. Baker, Marathon, N. Y.:

I claim supporting the lenses or their settings and diaphram which compose the eye-piece of the telescope by means of a spring or springs, thereby making a fastening that may be more readily removed, and rendering the lense less liable to work loose or be broken by the jaw or concussion to which they are exposed in use.

I claim the notch, C', in the setting of the object lens, in combination with the spring on the tube which holds the setting in and prevents it from working out by the recoil of the gun when it is fired.

I claim the spring clasp for holding the fore end of the telescope to the barrel of the gun.

I claim securing the disk, P, to the adjusting screw by turning the edge of the socket over the edge of the disk as described.

I claim fastening the telescope to the disk, P, by means of the ears, T T, strap, S, and pin, R, in combination with the spring or springs, between the disk and telescope and between the telescope and strap, S.

40,809.—Lock for Fire-arms.—Wm. H. Baker, Marathon, N. Y.:

I claim in combination with a cock or hammer, having its main spring rigidly attached to it as described, the swivel or link, G, provided with notches for the sere to hold the hammer at full or half cock.

I claim in a lock constructed as described, extending the arm of the sere or link through the lock plate, to make a connection between the sere and the cock.

40,810.—Railroad Journal Box.—O. Beecher & R. E. Rogers, Philadelphia, Pa.:

We claim, first, The oiling roller, K, frame, J, and weighted lever, M, or its equivalent, the whole being constructed and arranged within a journal-box and operating substantially as and for the purpose herein set forth.

Second, The partition, I, oil chamber, L, frame, J, and oiling roller, K, the whole being arranged substantially as set forth for the purpose specified.

Third, The annular flange, G, or its equivalent secured to or forming part of the wheel or axle, and arranged to project into the interior of the box, substantially as and for the purpose described.

Fourth, The annular flange, H, secured to or forming a part of the wheel or axle and arranged in respect to the annular flange, E, of the box, substantially as and for the purpose herein set forth.

40,811.—Soda Water Apparatus.—J. H. Blaisdell, Boston, Mass.:

I claim in a soda apparatus the arrangement of one outlet for soda within another, substantially as described.

Also the arrangement around or adjacent to the soda outlet or outlets of the various outlets for sirups and other fluids, substantially as described.

Also the arrangement in a soda apparatus of a diaphragm, n, and tisk, q, or the equivalent thereto, so as to act under pressure as described, to admit into two or more passages, and to shut off therefrom the soda supplied from a common source.

Also the formation of a chamber in a soda discharge pipe, so as to operate to check the velocity of the discharge under pressure, and thus supersede the employment of the condensing bottle, substantially as set forth.

Also the condensed arrangement of outlets, so that while each is separate from the others, they are all within the compass of and can each of them discharge into an ordinary drinking glass, without removal thereof, from a fixed postion.

40,812.—Harvester.—Virgil W. Blanchard, Bridport, Vt.:

I claim, first, The employment or use of a sliding shaft, E, one or two, provided with arms, H, in combination with two concentric circles of cogs, b b', attached to the driving wheel D, or to a wheel connected therewith for the purpose of varying the speed of the sickle, I, and throwing the same in and out of gear, substantially as set forth.

Second, The employment or use of springs, G G, applied to or connected with the shaft or shafts, E, in the manner shown, or in any equivalent way for the purpose of equalizing the movement of the sickle, or causing it to operate smoothly without jars or concussions as herein set forth

Third, The curved stay bar, T, attached to the bar, O, and shoe, P, substantially as shown ; in combination with the roller, c*, connected to the finger bar, S, as shown, and the cylindrical pin, w, by which the finger bar is attached to the shoe ; all arranged as shown, to admit of the finger bar and sickle being raised and lowered, and at the same time serve to hold or retain the same in a proper working position.

Fourth, The connecting of the cylindrical pin, w, to the lever, U, by means of the chain, e*, passing over and around the pulleys, f* f*, in the bar, O, and around the pulleys, h*, on the frame, A, and attached to the lever, U, for the purpose of raising the finger bar and sickle as set forth.

Fifth, Securing the bar, O, or staying the same in proper position by means of the roller, v, placed in the arm, Q, and fitted in the pendant frame, R, attached to the frame, A, substantially as herein described.

[The object of this invention is to obtain a grain and grass harvester which will be of light draught, admit of having a more or less rapid movement communicated to its sickle as occasion may require, be durable, free from all unnecessary friction in the operation of its working parts, and admit of having its finger bar adjusted with the greatest facility so as to clear obstructions which may lie in its path.

40,813.—Railway Carriage.—Nahum Franklin Bryant, East Boston, Mass.:

I claim the combination of the sliding box, e, made either with or without the oil chamber and either a stationary or a moveable bearing, the housing f, and the axle, c.

And I also claim the combination of such parts and the chock, H, arranged and applied to them so as to operate with them substantially as specified.

I also claim the combination of the moveable stopper, a, with the housing, f, and its chock, H, the said stopper being for the purposes or to operate as specified

I also claim the housing as made and provided with the packing groove, t, and packing, w, to encompass the sliding box, in manner and for the purposes specified

I also claim the combination of the centralizer or lip, s', with the housing or truck frame, or carriage thereof, when the latter has its wheels so applied as to be capable of being adjusted by means of a wheel changing track to either of two tracks of different gages.

40,814.—Channeling Tool.—Albert Bottum, Bridgeport, Conn.:

I claim the combination of the straight cutter, A, and the arc-formed cutter, B, for cutting a score and a channel within it of the form substantially as herein specified.

[This invention consists in the combination of a straight cutter and an arc-formed cutter so arranged relatively to each other, that while the first cuts a score in the sole or other article the other cuts from within the said score a strip whose transverse section is of semi-circular or segmental form, thus producing a semi-circular or segment shaped covered channel.]

40,815.—Machine for making Nuts.—Orin C. Burdict, New Haven, Conn.:

I claim, first, A die constructed as described in two parts, a and b, and the said two parts combined with a movable punch, L, and a fixed punch, N, to operate in the manner and for the purpose specified.

Second, The combination of the sleeve, i, punches, L and N, when the same are arranged in the manner described and combined with a die constructed as and for the purpose specified.

40,816.—Feeding Device for Saw Mills.—Victor H. Buschmann, Baltimore, Md.:

I claim, first, Applying the required pressure to the feed and guide rollers, by means of a single force acting equally upon opposite sides of both roller carrying frames, by mechanism constructed and operating substantially as described

Second, Hanging or supporting the roller carrying frames constructed as described in such manner that while they will always preserve their parallelism to each other they are allowed to yield equally on each side of a central line and accommodate themselves to boards of different thicknesses, substantially as described.

Third, The use of adjustable bearings, i i, or their equivalents, in combination with the roller frames, b b, and pressure plates, g, constructed and operating substantially as and for the purposes described.

Fourth, A central weight or other similar force in combination with a guide applied and operating substantially as and for the purposes described.

40,817.—Construction of Buggies.—Jonathan H. Bye, Sterling, Ill.:

I claim, first, The combination of the thills, a a, with the springs, b b and c c, for the purpose and in the manner herein described.

Second, The combination of the coupling, m m, with the rear springs, s s and r r, the curved continuation, n o n, of the coupling, m m, the beam, j, with its guides formed by l and l l, and the flexible bar, h, substantially as set forth.

40,818.—Filter.—Anthony Chabot, San Francisco, Cal.:

I claim, first, Combining one or more porous tubes with a pipe, B, by means of a flange, a, on the pipe for the reception of one end of each tube, a cap, C, for the reception of the other end and a bolt, D, substantially as herein described.

Second, In a filtering apparatus constructed substantially as specified, I claim the herein described arrangement of chambers and passages for conveying the water to and from them, operating as explained to provide for the cleansing of the filters by reversing the flow of water through them without reversing or changing the position of the filter or filters.

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Third, The combination and arrangement of the porous tube or tubes, A, pipe or pipes, B, tank, E, trunk. G, chamber, F. openings, f g h i, and gates or valves, f′ g′ h′ i′, to operate substantially as and for the purpose herein specified.

[This invention consists in a novel mode of applying porous tubes for filtering purposes whereby they are secured in their places with great facility and their strength greatly increased, and provision is made for a very free flow of water to pass through and from them; also in the arrangement of a filter or filters and the chamber and passages for conveying the water to and from them, in such manner as to provide for the cleansing of the filters by reversing the flow of water through them.]

40,819.—Window-sash Fastener.—Charles B. Clark, Mount Pleasant, Iowa:

I claim the circular flange, B, or its equivalent and the peculiar-shaped rollers, C C; the same being combined and operated substantially and for the purpose as set forth.

40,820.—Railroad Car Coupling.—Wm. C. Clark, Portland, Maine:

I claim the application of the pin to the bunter bar, so that the pin may be capable not only of swinging on a fulcrum in manner and under circumstances as stated, but of being raised off the fulcrum in order to disconnect the link from the bunter bar.

I also claim the combination of the latch or its equivalent with the pin and its supports as described, when such pin may be applied to the bunter bar, substantially in manner and so as to operate as specified.

40,821.—Washing Machine.—Adams R. Cooper, Mason City, Ill.:

I claim, first, The combination of the furnace, the boiler, and the washing mechanism, substantially in the manner described for the purpose set forth.

Second, Mounting the upper rubbing and squeezing rollers in an independent skeleton frame, substantially in the manner described for the purpose set forth.

Third, The combination of three or more rollers leaving a differential motion, with two or more rollers carrying an endless apron over a board between them, substantially in the manner and for the purpose described.

40,822.—Corn Planter.—Wm. Craig, Urbana, Ill.:

I claim, first, The roller, C, constructed of sections, a′ a′ a′ a*, which are providod with flanges, b*, as shown for the purpose specified.

Second, The button, L, attached to the back part of the draught pole, B, and arranged as shown for the purpose of keeping the front part of the frame, A, elevated and the shares, F, above the surface of the earth when required.

Third, Arranging or placing the drivers seat, M, on supports, N, the upper parts of which are horizontal and are fitted in slots made longitudinally in the ends of the seat, M, to admit of the adjustment of the latter as set forth.

[This invention relates to a new and improved seed-planting device by which seed may be planted either in drills or hills and in check rows, and the seed-distributing device operated either automatically or by hand, and the seed also properly covered and the earth rolled so that the latter will be firmly compacted over the seed and the clods of earth crushed or pulverized, the device also, by a simple manipulation being capable of having its furrow shares raised out of and free from the earth, as is necessary in turning at the ends of rows, transporting the device from place to place and in rolling land.]

40,823.—Seat and Cane.—Charles H. Dascomb, Cleveland, Ohio:

I claim the herein described improvement in combined cane and seat, consisting of the sections, A B B, canvas, S, head figure, 3, and pin, D, the several parts being constructed and united in the manner and for the purpose herein set forth.

40,824.—Apparatus for Adjusting Ordnance in Boring Mill.—S. B. Dean, Boston, Mass.:

I claim the arrangement of the bearing, the incline, c, wedge, d, screws, g and i, and uprights, h, or their equivalents, all operating together substantially as and for the purpose set forth.

40,825.—Nut Cracker.—Timothy Earle, Smithfield, R. I.:

I claim, first, A crusher, m, which has a lateral motion imparted to it by the action of a cam surface, c, or its equivalent, in combination with a stationary back rest, g, substantially as described for the purposes specified.

Second, The use of a back rest, g, which can be adjusted for nuts of various sizes, when applied to a nut-cracker, substantially as described.

40,826.—Hoe.—Josiah Ells, Pittsburgh, Pa. Ante-dated Dec. 1, 1863:

I claim the hollow or concave bracket b, and groove, p, in combination with a blade, m, having a semi-circular flange, e, and arched recess, h, and the key (Fig. 3), for securing and strengthening the blade, substantially as herein set forth.

40,827.—Machine for making Tags.—Thomas B. De Forest, Birmingham, Conn.:

I claim, first, An automatic feeding mechanism, in combination with an eyeleting mechanism whereby eyelets may be set at given intervals, substantially as set forth.

Second, The combination of an eyeleting mechanism, a feeding mechanism and a stamping or cutting-out device or mechanism, whereby the material may be eyeleted and cut apart into pieces of given size with the eyelet in a given position in each.

Third, An eyeleting or eye-forming mechanism, in combination with a stamping or cutting-out device or mechanism; whereby the eye-forming operation and cutting out are both performed in an organized machine without moving the material (or handling it) more than once

Fourth, The punch, a a5, operating previously to the insertion of the eyelet in combination with the eyeleting mechanism and cutting-off dies, D P1, to perform the successive operations of punching out, setting the eyelet and cutting apart the material, substantially as set forth.

Fifth, The employment of the presser foot, g, or its equivalent in combination with the eyeleting mechanism as and for the purpose substantially as described.

Sixth, The employment of the hammer, L, or its equivalent, in connection with the eyeleting mechanism, to insure the flow of eyelets through the supply passage or chute, Q, substantially as hereinbefore set forth.

40,828.—Percussion Fuse for Shells.—A. H. Emery, New York City:

I claim, first, The combination and use of the flange, D, and thread, F, with the plunger, C, substantially as and for the purposes herein described and set forth.

Second, The combination and use of the washer, E, when combined with the shell, H, flange, D, and screw thread, F, substantially as and for the purposes herein described and set forth.

40,829.—Latch.—Barthol Erbe, Snowden, Pa. Ante-dated Oct. 24, 1863:

I claim the use and employment of a round latch head when the same is connected with the internal moving parts, so as to revolve on its axis, in the manner substantially as described for the purpose set forth.

40,830.—Port Stopper for Vessels of War.—John Ericsson, New York City:

I claim, first, The construction of a port-stopper in the form of a crank, substantially as herein specified.

Second, The arrangement of a port-stopper to turn about an upright axis or nearly upright axis, situated some distance within or behind and opposite or nearly opposite to the center of the port, substantially as and for the purpose herein specified.

Third, The attachment of the bearings for the pivots or journals of the port-stopper to supports which are detached from the wall of the turret or other defensive structure in the immediate neighborhood of the port, substantially as herein described.

40,831.—Bed Bottom.—George Frey, New York City:

I claim the combination of two frames, A C, one being provided with movable legs and the other with an adjustable head piece and both being connected with each other by elliptic springs, D, in the manner and for the purpose substantially as herein shown and described.

[This invention consists in the application of elliptic springs between two frames, one of which is provided with movable legs and the other with an adjustable head-piece and with a cane bottom, in such a manner that when the legs of the first or lower frame are in their places, the whole device forms a convenient and cool lounge particularly intended for summer, and when the legs are removed the device can be placed into a bedstead and used as a spring bed bottom of superior durability and elasticity.]

40,832.—Process for Removing Burrs from Wool.—James Fullen, of Saxonville, Mass.:

I claim the treatment of wool, as described, viz., by applying to it, in connection with the treatment of it, an acid solution, a picker and an alkaline solution, as set forth, a solution of Irish Moss, or its equivalent, the whole being substantially as specified.

40,833.—Car Coupling.—M. C. Gardner, Rochester, N. Y.:

I claim the method herein described of supporting the pin, P, by means of the balls, C, moving in holes or grooves at right angles to the line of draft, the whole operating in the manner and for the purpose substantially as described.

40,834.—Registering Marine Logs.—Alexander Gordon, New York City:

I claim the combination with the registering marine log, of a compass divided into compartments, z z, for the reception of pellets or their equivalents and an apparatus for dropping a pellet into one of said compartments whenever the vessel has made a certain distance, the delivering tube or portion of the said dropping apparatus being so controlled as to always point in the direction in which the vessel is moving through the water, and the whole operating substantially as and for the purpose herein specified.

40,835.—Composition for Lubricating.—Charles Grath, St. Louis, Mo.:

I claim the production of an axle and machine grease made from paraffine oil with the combination of the substances above specified.

40,836.—Brewing with Maize.—Ludwig Hacker, Altenburg, Hungary:

I claim, first, The within-described process of disclosing the starch of corn and preparing the saccharified extract from corn mixed with barley malt, in about the proportion heretofore specified, by the three manipulations substantially as set forth, said manipulations being conducted either in one and the same or in different vessels, as may be desirable.

Second, Exposing maize, when the same is mixed with barley malt about in the proportion herein specified, to the action of boiling water, substantially as and for the purpose set forth.

40,837.—Sawing Machine.—C. J. Holman, Oshkosk, Wis.:

I claim the combination of the shaft, e, and spur wheel, d, with the drums, a a a a, and their movable collars, p p, with the gears, c c c c arranged substantially in the manner and for the purpose specified.

40,838.—Machine for Grinding and Polishing Tools,—J. A. Hendrick, Providence, Pa. Ante-dated Nov. 21, 1863:

I claim the two rock shafts, I J, fitted in a sliding frame, H, having a lateral reciprocating movement and provided respectively with the sockets, Q V, with the tool and pattern fitted in them, and operated from the grindstone shaft, C, as shown, or in any equivalent way, in combination with the grindstone, B, and the adjustable bearing, S, or its equivalent, for the purpose herein set forth.

40,839.—Composition for Bank-note and other Inks.—T. S. Hunt, Montreal, C. E.:

I claim the new use and application of the said mineral compounds, as an ingredient or basis of an ink for printing from engraved plates, from types or for other kinds of printing.

40,840.—Grain Cleaner.—John Hutchison, of Three Rivers, Mich.:

I claim, first, The combination of the hopper, the sliding-sleeve, and the rotating dish, or scattering cup, substantially in the manner and for the purpose described.

Second, The combination of the scattering dish, inclined board, E, and beak, e, with the suction spout, as described, for the purpose set forth.

Third, The combination of a sliding sleeve, cut-off, a cant board, and a suction spout with a fan, substantially in the manner described, for the purpose set forth.

Fourth, The combination of the hopper the toll dish, and the slide-valve, as and for the purpose set forth.

40,841.—Inkstand.—L. P. Jenks (assignor to L. L. Tower), Boston, Mass.:

I claim the combination of the elastic ring, G, with the reservoir, F, and the dipping cup, c, and for the purposes shown.

40,842.—Potato Digger.—William Jones, St. Louis, Mo.:

I claim, first, The clearer, D, arranged on the front end of the machine and combined with the bar, E, for operating the same. The whole to be constructed and arranged substantially in the manner set forth.

Second, I claim the rods, K, and springs, J, in combination with the hinged platform, H, as and for the purpose set forth.

Third, I claim, in combination with the digger, G, the sifter, N, constructed and operated as set forth.

Fourth, I claim, in combination with the digger and sifter, constructed as set forth, the endless apron, m, for the purpose of receiving and delivering the potatoes, as described.

40,843.—Ventilating Railroad Cars.—T. S. Lambert, of Peekskill, N. Y. Ante-dated Dec. 4, 1863:

I claim the application of ice to assist in the ventilation of railroad cars, E, and for other purposes, substantially as set forth.

The construction of a closet with shelving or drawers for ventilation by means of passing air over the surface of ice, substantially as set forth.

40,844.—Mode of Facing the Walls of Buildings.—T. S. Lambert, Peekskill, N. Y.:

I claim the construction of facing for the inner or outer surface of walls, of building each piece of which facing is finished with a shoulder offset or arm, to be the means of fastening it to the wall, in the manner and for the purpose substantially as set forth.

40,845.—Roller for Wringing Machines.—T. S. Lambert, Peekskill, N. Y.:

I claim the application of any kind of cordage to form the surface of rollers in wringing machines, in the manner and for the purposes substantially as set forth.

40,846.—Pen and Pencil Case.—J. J. Lownds, New York City:

I claim the two tubes, A B, arranged to slide one within the other, in combination with the spirally-slotted tubes, E F, pen slide, C, and pencil, I, all arranged as and for the purpose herein set forth.

[This invention consists in having the case of the pen and pencil formed of two tubes, arranged so that one may slide within the other and connected with a pen-slide movement or mechanism, in such a manner that the pen will be moved out from and drawn within the case by extending and closing the tubes. The device being also provided with a reserve for leads and a pencil arranged in a novel way to form a convenient article of the kind specified.]

40,847.—Hose Nozzle.—C. F. Macy and Seth Martin, Little York, Cal.:

We claim a hose pipe provided with internal radial plates, substantially as and for the purpose herein set forth.

[The ordinary hose pipes, especially those which are used for mining purposes, scatter or spread the stream which is ejected from them, partly in consequence of the taper form of the pipe and partly in consequence of the hose itself, which is almost invariably more or less twisted or crooked near the pipe. This scattering or spreading of the stream detracts greatly from its efficiency, and to obviate this difficulty is the object of this invention.]

40,848.—Sofa Bedstead.—T. J. Magee, Cincinnati, Ohio

I claim the arrangement of sofa or lounge, A, folding frame, B, arms, C C′, springs, D and legs, F F′, and cords, G G′, the whole forming a combined sofa and self-unfolding bedstead, substantially as set forth.

40,849.—Mode of Slinging Accouterments.—W. D. Mann, Detroit, Mich.:

I claim the manner herein described and represented of slinging the cartridge-box of an infantry or cavalry soldier so as to have the weight thereof counterbalanced by the other accouterments and arms usually worn upon the body, and the weight of the whole borne upon the shoulders, substantially as described.

[The object of this invention is to transfer the entire weight of the arms and accouterments of a cavalry or infantry soldier usually worn upon the body, from the waist to the shoulders, for the purpose of lessening the tendency of the soldier to inflammation of the bowels, piles, hernia and other diseases which result from wearing a tight body belt, and at the same time enable him to carry a much larger quantity of ammunition than he could possibly do in the usual or ordinary way.]

40,850.—Excavator.—Daniel McNabb, Moscow, Mich.:

I claim, first, The scraper, B, with its grooves, P, and pulley, K, suspended by chains, E E, on pivots, N, and operating substantially as described.

Second, I also claim the bar, G, the hooked king-bolt, the shifter, F, and the brake, D, the whole constructed, combined and operating substantially as described and for the purposes specified.

40,851.—Clock and Watch Escapement.—Don J. Mozart, New York City, and Levi Reach, Farmington, Conn., and Laporte Hubbell, Bristol, Conn.:

We claim, first, Constructing a staff or verge, in such manner that the pallets or points of repose are adapted to receive the teeth of a common ratchet scape wheel, substantially as described.

Second, The concave beveled surfaces, j j, and groove, or channel, i, formed in the solid cylindrical verge, substantially as described.

Third, The application of the scape wheel, d, or its equivalent, to the verge, b′, when constructed substantially as described.

Fourth, Giving the vertical adjustment to the support for the verge of the escapement by means substantially as described.

40,852.—Hydrant.—John Pringle.—Jersey City, N. J.:

I claim, first, The plug, a, with three passages, g h i, and held in place by a cap, e, over its thick end in combination with the lever, b, rod, e, slip weight, E, and pipes, B C, all constructed and operating in the manner and for the purpose substantially as set forth.

Second, The weight, E, made in two parts and united by a dovetail in combination with the rod e, and plug, a, constructed and operating as and for the purpose directed.

[The object of this invention is a self-acting metallic hydrant capable of being closed by the action of a weight and provided with a three-way cock, to admit the water or other liquid from the supply to the delivery pipe and allow the waste in the upper part of the delivery pipe to run down into the ground, thereby preventing its freezing, and saving the hydrant from injury.]

40,853.—Sewing Machine.—W. S. Pratt, New York City:

I claim, first, A sewing machine making a running stitch and using an ordinary sewing needle, operating substantially as described, in which the needle is not stationary, but is carried or driven forward through the cloth in making the stitch, and then carried backward with the fabric preparatory to the making another stitch.

Second, The arrangement of the lip, d, in combination with the needle, g, and the rollers, a a′, and bar, e, for making the stitch, substantially as described.

Third, The combination and arrangement of the ratchet, o, and impelling arm or pawl, n, with the mechanism, rotating the rollers, a a′, b b′, substantially as and for the purposes set forth.

Fourth, The combination of the adjustable arm or pawl, n, with the ratchet, o, for the purpose of regulating and varying the length of the stitch, substantially as described.

40,854.—Quartz Mill or Crusher.—P. M. Randall, San Francisco, Cal.:

I claim a rotary muller provided at its face side with grooves of involute or other form, which will convey or force the substances acted upon from the periphery of the muller toward its center and thence upward through the muller, so that the substances may be expelled by centrifugal force toward the periphery of the muller, and then pass down again underneath the muller to be forced toward its center as before, as herein set forth.

[The object of this invention is to obtain a muller to operate in such a manner as to subject the article being ground or reduced by a continuous operation until the article is reduced to the desired degree of comminution. The invention is applicable to the reduction of most substances to a pulpy or pasty consistency, but is more especially designed for the reduction of quartz and the amalgamation of the minerals contained therein.]

40,855.—Pen and Pencil Cases.—J. H. Rauch, New York City:

I claim, first, The tube, B, placed centrally or concentrically in the tube, A, in combination with the detachable pen-slide tube, D, all arranged as shown to admit of the tube, D, when shoved into tube, A, passing over the tube, B, for the purpose of enabling a large pen, G, to be used.

Second, Constructing the pen-slide, E, of two tubes, a b, one being fitted over the other with the shank of the pen-holder, F, between them, as and for the purpose specified.

Third, The slide, H, on the head, F′, provided with a flange, g, or its equivalent, when said slide is used in connection with the tubes, A D, for the purpose set forth.

Fourth, The ring or band, f, within the tube, D, and attached to the pencil slide, E, when used in connection with the tube, B, in the tube, A, to preserve the nib or point of the pen when the tube, D, is shoved into tube A, as described.

Fifth, The combination of the tubes, A B D, pen-slide, E, and the head, E′, with slide, H, all arranged substantially as and for the purpose herein set forth.

[The object of this invention is to obtain a combined pen and pencil case which will be capable of being closed so as to be quite short and convenient to carry in the pocket, and at the same time be capable of being readily extended or lengthened when used either with the pen or pencil and admit of a good sized-pen being used.]

40,856.—Compound Projectile for Ordnance.—L. E. Reynolds, Mendon, Ill.:

I claim the combination of the major and minor projectiles, the interposed charge and the fulminate priming, substantially as herein described, the whole forming a compound projectile operating as herein set forth.

And I also claim the protecting ring, e, applied substantially as and for the purpose set forth.

[This invention consists in a compound projectile composed of two distinct projectiles, one of which fits the piece of ordnance from which it is to be fired, and the other fits to and projects from a suitable bore or cavity within the first one, such bore or cavity also containing, behind the smaller projectile, a charge of gunpowder and percussion priming for the ignition of the same, or a charge of fulminating powder alone. The larger projectile is intended to have its weight so distributed that when it is discharged from the gun the point of the smaller projectile will strike and by percussion cause the explosion of the charge by which the smaller one, after having received the whole impact due to the larger one, will receive an additional impact.]

40,857.—Stamp Canceler.—R. H. Rogers, New York City:

I claim the ink reservoir, A, with perforated stamp, plate, J, attached to its lower end in connection with the plunger, D, and diaphragm, E, either or both, and with or without the gage, H.

[This invention relates to a fountain canceling device, one which

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will contain a quantity of ink so as to supply the device for an indefinite number of impressions and obviate the necessity of applying the device to an ink pad when an impression is to be given.]]

40,858.—Joint for Slate and other Frames.—Francis Shenton, Slatington, Pa. :

I claim a joint formed of notching the sides and ends, as described, in combination with the spline or piece, J, and pins, K K.

40,859.—Cultivator.—M. H. Skiff, Cornwall Bridge, Conn.:

I claim the combination of the carriage, F, that carries the cultivator teeth or plows, with the axle, A, and with the main frame, C carried on said axle, that the driver from his seat may, at pleasure, move said carriage laterally, or tip it up or let it down, and fasten it down, substantially in the manner and for the purpose herein described and represented.

40,860.—Hay-elevating Fork.—R. J. Stanley, Mount Morris, N. Y. :

I claim the double fork composed of the two stocks, A A′, with their attached tines, the two arms, C C′, two links, D D′, and the catch lever, G, and spring catch, d, or their equivalent, attached to one of the arms, C C′, the whole combined and operating substantially as and for the purpose herein specified.

[This invention has been more especially designed for forks for the discharging of straw from the bleaches in the manufacture of paper, but may also be applied to agricultural purposes. It consists in a novel construction of the fork and in certain novel appliances thereto, whereby the opening and closing at the proper time is rendered automatic, and the necessity for a separate tackle to open the fork is dispensed with.]

40,861.—Truss.—W. R. Stephenson, West Greenville, Pa.:

I claim the combination of the adjusting straps, C C′ C, and body-branching overlapping springs A A, with each other and with the swinging arms, D D′, and pads, E E, in the manner herein shown and described.

[The object of this invention is to arrange the branched ends of a double body spring by means of straps, for extension and counter-extension, so that they cross each other and bear with equal force on the opposite sides of the spire; and furthermore, the pads are so combined with a strap and with a ratchet and spring pawl, that the pressure exerted by said pads on the body can be increased or diminished at pleasure without removing the truss.]

40,862.—Evaporator for Sorghum Juice.—D. S. Stewart, Wapello, Iowa :

I claim, first, The combination and arrangement of the pans, B C C, the furnace, A, and flues, D D, substantially as and for the purpose set forth and described.

Second, The arrangement of the valves, T T, in combination with the flues, D D, for the purpose of varying the heat under the pans, C C, as described.

Third, The entire apparatus herein described, consisting of the pans, B C C, arranged as shown, the furnace, A, with flue, F, the flues, D D, and chimneys, M M, and valves, T T, the whole combined and operating as and for the purpose described.

40,863.—Cooking Stove.—L. E. Suffert, St. Louis, Mo. :

I claim the removable heating jacket or chamber to be placed on top of the stove, furnace, or any other fire-place, fig. 6a, substantially as described above.

4 ,864.—Harvester.—W. A. Sweet, Syracuse, N. Y. :

I claim, first, The attaching or securing of the cutter-bar head, C, to the sickle, B, by providing said head, C, with a shank, c, of taper form, interposed between the cutter bar, b, and the teeth, a, of the sickle, substantially in the manner as and for the purpose herein set forth.

Second, The peculiar construction and arrangement of the slot cap, E, and way guide, F, substantially as shown, for the purpose of forming a guide for the pitman, D, and for the retaining of the journal, g, within the cutter-bar head, C, as set forth.

40,865.—Machine for Exercising the Human Body.—C. F. Taylor, New York City :

I claim the arms, G G, provided with adjustable pads, M M, and attached to the reciprocating bar, C, substantially as shown, for the purpose specified.

I further claim the arms, G G, pads, M M, bar, C, serpentine cam, E, and lounge, A, all arranged and combined for joint operation, as and for the purpose specified.

40,866.—Combining Springs for Motive Power.—George Terry, New York City. Ante-dated Oct. 3, 1863 :

I claim the combining or connecting together of a series of springs, in the manner substantially as herein described, so that said springs will be wound up simultaneously by the turning of a common shaft, and, when wound up, be made to exert their power, or act in an uniform combined manner upon said shaft, as set forth.

[This invention consists in combining a series of springs, two or more, in such a manner that the power or strength of all the springs will be applied to a common shaft, and so as to act equally and harmoniously precisely the same as a single spring, but with an increased duration equal to the time of the action of one spring multiplied by the number of springs used.]

40,867.—Lifting Jack.—William Thurber, Olean, N. Y.:

I claim, first, the combined arrangement of the truck wheels, I I, the spring shoe, h and pointed spikes, k k, operating in the manner as and for the purposes herein set forth.

Second, I claim the combination of the hanging rack, a, the stirrup, j, the supporting spring, e, and the lever, E, with the notches, i i i, for changing the fulcrum to get more or less power on the lever, in the manner herein specified.

40,868.—Shutter Fastenings.—T. J. Townsend, Baltimore, Md.:

I claim the wheel, A, chain, F, and bar, E, placed respectively within a case, C, and pipe, D, in connection with the hinge, F′, of the blind or shuttle applied to the wheel, A, or shaft, B, thereof, the case and pipe being applied to the window frame, and all arranged substantially as and for the purpose herein set forth.

[This invention relates to a new and improved device for opening and closing window shutters and blinds, and for securing them at any desired point between an open and a closed state from the inner side of a room without raising the sash. The invention consists in the employment or use of a chain attached at one end to a sliding bar and attached at the opposite end to a wheel provided with a shaft or arbor on which the lever hinge of the blind or shutter is fitted.]

40,869.—Pruning Hook.—Aaron Travis, Peekskill, N. Y.:

I claim a pruning hook, A, constructed in the form herein shown with cutting edge on the various parts, ec and d, as set forth.

[This invention relates particularly to the shape of the pruning hook, and it consists in running the cutting edge from the handle in a straight line up to about two-fifths (more or less) of its entire length and turning it off at an angle of about 135 degrees, whereby an inclined plane is produced which finally ends in a short hook, in such a manner that in applying said cutting edge to a twig or branch of a tree or to a stalk of corn or other plant, a draw-cut is produced and the operation of cutting performed with less power than with a hook of the ordinary shape.]

40,870.—Sugar Evaporating Apparatus.—Erasmus Tucker, Poplar Grove, Ill.:

I claim, in combination with an evaporating pan, an intermediate heat regulator, H, consisting substantially of alternate shallow water pans and perforated plates, when constructed and operated substantially in the manner and for the purposes described.

I also claim, in combination with the intermediate heat regulator, H, the dampers, g h, for the purpose of regulating or shutting off the heat from the pan, substantially in the manner herein described.

I also claim, in combination with the evaporating pans, set at different levels, the two chimneys, E F, and dampers, k m, for the purpose of heating the first pan, B, independently of the others, substantially in the manner and for the purposes set forth.

40,871.—Machine for Renovating and Purifying Feathers.—Clark Turner and J. A. Jackson, Triangle, N. Y.:

We claim the revolving feather receptacle, A, in combination with the steam chamber, C, provided with perforated tubes, D D, passing into the sides of the receptacle, A, and having valves, E, fitted within them and all arranged as shown to operate in the manner as and for the purpose herein set forth.

[This invention consists in the employment or use of a rotating feather receptacle provided with an internal steam tube having tubes projecting from it provided with valves, and all arranged in such a manner that the feathers may be steamed and cleaned or purified and dried in a thorough manner.]

40,872.—Condenser.—G. J. Washburn, Worcester, Mass.:

I claim, first, An intermittent syphon condenser constructed and operating substantially as herein described.

Second, The employment or use in a condenser, of the construction specified, of a water chamber, A′, to contain a supply of water which may descend by its own gravity in the event of pressure occurring within the tank.

Third, The check valve, b, employed for the purpose described in combination with a condenser of the construction specified.

Fourth, The combination of the perforated diaphragm, J, and syphon pipe, M, with the tank, A, and chamber, A′, for the purposes set forth.

Fifth, The combination of the safety valve, l, with a condenser of the construction described.

[This improvement obviates the difficulties hitherto existing in the employment of the syphon principle to elevate water for injection.]

40,873.—Plant Protector.—James Weed, Muscatine, Iowa:

I claim the employment or use of rockers, D, of circular or sector form attached to shutters, B, to admit of the adjustment or manipulation thereof, substantially in the manner as and for the purpose herein set forth.

I also claim the supplemental shutters, j l, attached respectively to the framing or structure and shutters, substantially as and for the purpose set forth.

I further claim connecting the rockers with the base of the structure or with ways attached thereto by means of cords, as and for the purpose specified.

[This invention relates to an improved means for protecting trees, vines and other plants against injury from winter and spring frosts, and may be considered as the further carrying out, perfecting or extending of a means which was patented by this inventor on Oct. 21, 1862.]

40,874.—Machine for Amalgamating Gold and Silver.—Zenas Wheeler, San Francisco, Cal.:

I claim, first, The fixed spiral ribs, h, on the periphery of the rotary muller, D, and reversedly-spiral ribs, e, on the inner side of the pan, A, in combination with the curved grooves, g, in the face or underside of the muller, D, and reversedly-curved grooves, d, in the bottom of the pan, A, when arranged for joint operation in the manner and for the purpose specified.

Second, Connecting the muller, D, to the shaft, G, by a universal joint composed of the yoke, F, and ring, i, provided at four equi-distant points around its periphery with journals, j j h h, the former working in bearings in the lower end of the yoke, F, and the latter in boxes attached to the upper side of the muller, D, as and for the purpose specified.

Third, In combination with the muller, D, and pan, A, the curved plates, L, supported at their outer ends in slides, n, and at their inner ends in a frame, M, which is supported on the upper end of the shaft, G, in such a manner that the plates, L, will follow any adjustment of the muller, and thus bear the same relation to it whether in its highest or lowest working position, as specified.

[The object of this invention is to obtain a device of simple construction which will cause a thorough incorporation of the quicksilver with the pulp containing the metal, so as to insure a perfect amalgamation of the latter.]

40,875.—Latch for Gates.—S. B. Williams, Leavenworth, Kansas :

I claim the securing of the bolt, D, of the latch within the case, A, and to the slide, B, by means of the set screws, E, substantially as shown, to admit of the longitudinal adjustment of said bolt for the purpose herein set forth.

[The object of this invention is to obtain a latch with a bolt so arranged that it may be adjusted longitudinally further forward or backward in the latch case, so as to compensate for any shrinking or swelling of the gate or fence, and admit of the bolt always being put in a proper relative position with the strike or nosing so that it may operate well at all times however much the space between the gate and the fence may vary in consequence of shrinking and swelling.]

40,876.—Combined Rake and Reel for Harvesters.—W. A. Wood, Hoosick Falls, N. Y.:

I claim the combination of an independent rake and reel, when arranged to work together, substantially in the manner and for the purpose herein set forth.

40,877.—Ruffle.—E. C. Wooster, New York City :

I claim the two-ply ruffle herein described, composed of a single piece of cloth folded, fluted or crimped and sewed or stitched, substantially as herein specified.

[This invention consists in a two-ply ruffle composed of a single piece of cloth doubled by turning inward and folding both of its edges, having the two edges secured by two lines of sewing or stitching running lengthwise of the piece, with two frills which extend outward from the line of stitching, and with a series of flattened plaits between them, the stitching serving the purpose of confining the plaits and frills as well as the edges of the piece.]

40,878.—Washing Machine.—G. F. S. Zimmerman, Frederick, Md.:

I claim in a washing apparatus that is to be set and used in a common wash tub, the hinging of the frame, d, that carries the rubber, f, to the stationary or under portion, b, for the purpose and in the manner herein described and represented.

40,879.—Spring Hinge.—Lorenz Bommer (assignor to the American Spiral Spring Butt Hinge Manufacturing Company), New York City :

I claim, first, The hollow cylinder, D, or its equivalent, when applied to the sectional spring hinge, essentially as and for the purpose herein set forth.

Second, The annular groove, p, in cap, E, or its equivalent, in conjunction with pins, f f, as and for the purpose herein set forth.

Third, The combination of cylinder, D, caps, E F, spring, C, or their equivalents, substantially as and for the purposes herein set forth.

40,880.—Machine for Nailing Shoes.—J. H. Brown (assignor to himself and J. E. Farwell), Boston, Mass.:

I claim the improved machine, as not only having its shear or cutter arranged with respect to the nail driver and nail strip carrier, substantially in manner as described, but as having combined with the shear and nail driver a mechanism, viz.: the lever, D, and cam, c, or the mechanical equivalent thereof, which through or by the downward movement of the said driver shall be caused to force the shear forward against the nail strip in a manner to cause a nail by the conjoint action of the channel, a, and the said shear, to be separated from the strip.

And furthermore I claim the improved machine, as not only so made, but as provided with a feeding mechanism, constructed, arranged and applied to the nail strip carrier, substantially as and so as to operate by means as described.

And furthermore I claim the arrangement of the spring, N (either with or without the auxiliary carrier, L), with the nail carrier, the channed stock and the shear, made to operate with such stock as specified.

I claim in the nailing machine not only the arrangement of the spring within the driver, but its combination with a bearer to work within such driver, substantially as specified.

40,881.—Tobacco Smoking Pipe.—Frederick Fickey (assignor to Wm. H. Fickey), Baltimore, Md.:

I claim, first, The combination and arrangement of the chambers, A B C and D, the smoke passages, a b c and d, and the saliva cup in the manner described and shown.

Second, Placing a sponge or similar material in such a position in a tobacco pipe that while it shall absorb and retain the nicotine, it shall not be liable to come in contact with and absorb the saliva which may accumulate in the pipe, substantially in the manner and for the purpose described, and this I claim irrespective of any special form or arrangement of chambers so long as the principle herein set forth is maintained.

40,882.—Lock.—T. G. Harold (assignor to himself and J. W. Kissam), Brooklyn, N. Y.:

I claim a changable ring, b, notched for the passages of the bolt or shackle in combination with a notched circular tumbler, whereby the permutations or combinations may be changed as specified.

Second, I claim the ring, g, carrying the shackle in combination with the divided and flanged case, secured together as specified, whereby the hinge of the shackle is secured between the flanges, as set forth.

Third, I claim the divided lock case secured together as specified, in combination with the ring carrying the shackle, when said case is provided with two or more openings whereby the position of the shackle relative to the indicators can be changed when the shackle is withdrawn, without opening said case as specified.

40,883.—Harvester.—William Jones (assignor to himself and T. L. Salisbury), St. Louis, Mo.:

I claim, first, The arrangement of the elevating lever, S, on the front part of the main frame of a draft machine, behind the cutting apparatus, in the manner and for the purpose shown and described.

And second, I claim the arrangement of the cogged segments, B B, grippers, P P, and reel posts, O, in respect to each other and to the frame of the machine, as shown and described.

40,884.—Breech-loading Fire-arm.—J. H. Merrill (assignor to Merrill's Patent Manufacturing Co.), Baltimore, Md.:

I claim, in combination with the ordinary hammer of a gun for exploding a cap, an auxiliary hammer, C, for exploding a metallic cartridge, said auxiliary hammer being pivoted to some stationary part of the arm, and actuated by said ordinary hammer, substantially in the manner and for the purpose set forth.

40,885.—Percussion Fuse for Shells.—W. F. Patterson, Somerset, Ky. (now in the U. S. Army) assignor to himself and W. S. Forbes, Philadelphia, Pa.:

I claim the holding of the inner tube, C, which is the hammer or plunger in its place, and to the outer tube, B, by means of a wooden pin, D, applied and acting as herein described and represented.

40,886.—Sizing for Hats, &c.—H. E. Pond, Franklin, Mass., assignor to W. E. George, Wrentham, Mass.:

I claim the above-described improvement in making the hydro-alcoholic solution of gum for the purpose specified.

40,887.—Breech-loading Fire-arm.—Joseph Rider, Newark, Ohio, assignor to himself and E. Remington & Sons, Ilion, N. Y.:

I claim the so combining of the hammer and the independent breech plate, as that they may lock and interlock with each other, substantially as herein described and represented.

40,888.—Explosive Projectile.—J. N. Smith (assignor to himself and W. B. Headley, Jersey City. Ante-dated Dec. 1, 1863 :

I claim the arrangement of the bent levers, H H, in pivot sockets in the wall of the missile, as also in relation to the front and rear shells, so as to simultaneously fulfill the two functions of direct hammers, and, through connecting wires, of operating other hammers in a distant part of the missile, substantially as herein specified.

I also claim the protecting cap, G, with its hollow cap arms, g g, constructed, arranged and operating, substantially as herein set forth.

I also claim the arrangement of the spiral wings, M M, in combination with the arms, g g, of the cap, G, as herein set forth.

I also claim locating separate shells in the extreme end of the projectile, and exploding them simultaneously by the connecting wires, V V, or their equivalents, substantially as herein described.

I also claim the separate inclosed hammer chambers, N N, as set forth.

I also claim the peculiar construction and combination of the rear multi-chambered shell, C, and plug, D, as set forth.

40,889.—Railway Car Truck.—C. T. Tisdale (assignor to himself, B. W. Tisdale and M. B. Boynton), East Boston, Mass.:

I claim the combination of the two separate wheel frames, C D, and the king bolt bar, G, or its mechanical equivalent, the whole being applied together and to the wheels substantially in manner and so as to operate as and for the purpose hereinafter specified.

And I also claim the combination of the said separate wheel frames, C D, and their king bolt bar, G, with means substantially as described, viz: the latch bars, L, and their pins, f g, for connecting and disconnecting each two adjacent ends of said wheel frames, the purpose of connecting them being as hereinbefore stated.

And I also claim the combination of the wheel frames, C D, and their bar, G, with the bolts, I I, and their holes, K K, or their mechanical equivalent, applied to the frames and bar, the same being for the purpose of fixing the frame to the bar in order to preserve the wheels in their true position with respect to the railway track.

And I also claim the bar, G, as provided with one or more shoulders, e, at each end, when the said bar is combined with two wheel frames, C D, applied to it and supporting the wheel axles, substantially as set forth.

40,890.—Lamp Chimney.—Albert Albertson, New York City. Ante-dated Nov. 26, 1863 :

I claim a lamp chimney composed of a metal frame, formed of a tube, D, rods, a, and a ring or base, E, and a glass portion, F, fitted on the exterior of the metal frame, in such a manner as to be capable of being raised and lowered thereon, substantially as set forth.

40,891.—Toy Automaton.—J. S. Brown, D. C., assignor to himself and C. P. Stimets, New York City :

I claim producing the walking motion by propelling each foot forward alternately in the arc of a circle, around the other foot as a stationary center or pivot.

I also claim the alternately acting wheels, L L, for propelling the feet forward, having an intermittent moving action, to as to make the feet progress in succession, substantially as herein set forth.

I also claim adjusting the feet up and down on the legs or frame, so as to vary or adjust the steps, as desired, substantially as herein specified.

I also claim suspending and pivoting the bust of the automatic upon the movement thereof, substantially as and for the purposes herein described.

I also claim the wire hoops or rings, u u, for securing a covering around, without interfering with the movement, as specified.

RE-ISSUES.

1,587.—India Rubber Soles for Boots and Shoes.—Charles McBurney, Roxbury, Mass. Patented April 5, 1859 :

I claim as a new article of manufacture a sole for boots or shoes made of vulcanized india rubber or other vulcanized gum provided with holes for the reception of nails, pegs, rivets threads or other mechanical devices by means of which the sole may be attached to the uppers, such soles having a protecting external vulcanized surface, substantially as herein described.

I also claim making india rubber soles or soles of any other vulcanizable gum in molds, in combination with forming therein, previous to vulcanization, holes designed to contain nails, pegs, rivets, thread or other mechanical means for the attachment of the sole to the uppers.

1,588.—India Rubber Soles for Boots and Shoes.—Charles McBurney, Roxbury, Mass. Patented April 5, 1859

I claim as a new manufacture a vulcanized india rubber sole or sole made of any other vulcanized gum adapted for attachment to boots or shoes by means of pegs, nails, rivets or sewing or other equivalent means, the sole being made in such manner that said attachment does not require any previous preparation of the sole by piercing or cutting holes.

I also claim as a new manufacture boots and shoes produced by combining with the uppers thereof, a molded sole made of vulcanized india rubber or other vulcanizable gum, when the latter is attached to the former by nails, rivets or other metallic clinching devices or threads, applied in such manner as will neither disfigure the shape or require the piercing of the face or bottom of the sole after vulcanization.

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Money Received.

At the Scientific American Office, on account of Patent Office business, from Wednesday, Dec. 9, to Wednesday, Dec. 16, 1863 :—

H. & B., of N. J., $75; I. E. P., of Conn., $12; G. L. T., of N. Y., $49 ; M. C. B., of Ill., $20; M. & S., of Vt , $45; G. M. Jr., of Ill , $20; M . & H., of N. Y., $20; A. J. B. F., of Ind , $20; P. L. S., of N. Y., $16; F. L. S,, of Pa , $45; A. C., of N. Y., $61; L. C. W., of N. Y., $20; J. O. H., of Pa., $10; F. H. C. M., of N. Y., $30; W. H., of Cal., $15; W. K., of N. Y. $25; J. L. & Co., of Iowa $250; L. & L., of Mass., $16; L. W. F., of Ind , $25; E. C, N., of N. H., $16; R. L., of Ohio, $15; L. B. S., of Conn., $25; M. B. W., of Conn. $20; W. A , of U. S. N., $20; S. A. S., of N. Y., $25; G. P. G., of N. Y., $25; J. & D , of N. Y., $59 ; J. W. R., of N. Y., $20; R. H. M., of Wis., $20; T. F. B., of N. Y., $25; W. L., of N. Y., $16; H. T. M., of N. Y., $16; J. P. H., of Iowa, $15; D. H. S , of Iowa, $20; E. S. H., of N. Y., $16; B. E., of N. Y., $16; C. S., of N. Y., $16; M. & G., of N. J., $25; G. T., of Mich., $25; K. S. & Co., of Pa., $600; P. W., of Iowa, $15; C. K , of Ill., $32; C. & D., of Conn., $25; W. M., of Ill., $16; A. T., of Iowa, $16; F. A. De M., of N. Y., $25; J. D. H., of N. Y., $20; J. L. C., of Iowa, $20; G. A. S., of Conn., $16; S. S., of N. J., $12; A. G., of N. Y., $12; J. E., of N. Y., $20: R. H. B., of N. Y., $20; T. B., of N. Y., 16; J. R. B., of Ind., $60; E. M., of France, $16; J. N., of Ill., $20; W. G, S., of N. Y., $20; J. A. D., of N. Y., $16; C. H. G., of Wis., $20; D. W., of Ill., $25; E. P., of Mass., 25; B. L., of N. Y., $28; T. W. W., of Ill., $25; W. D., McG., of Pa., $10; L. P., of Ind., 15; E. G. R., of Mich., $16; E. F. of N. Y., $15 A. A. B., of N. Y., $16; H. B. H., of Ill., $12; J. M., of N. Y,, $16; D. D., of N. Y., $20.

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Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office, from Wednesday, Dec 9, to Wednesday, Dec. 16, 1863 :—

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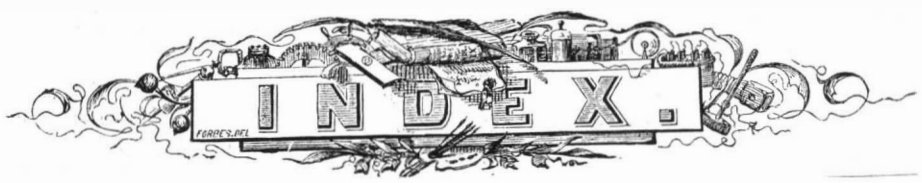
A. B. Jr., of N. Y.—Gas cannot be made from kerosene oil by driving a current of cold air through it. Who informed you that 1,000 cubic feet of gas could be made from a gallon of this oil? About 10 cubic feet only are obtained from a gallon. You will find an apparatus for distilling it, with much useful information on the subject, illustrated and described on page 324 (new series) of the SCIENTIFIC AMERICAN.

E. C .M., of Pa.—We do not know where you can obtain a steam engine of the class to which you refer. We advise you to get a good small horizontal engine in preference. It will give you more satisfaction in operating your crusher.

J. E. McE., of N. Y.—Employers have no more right to use an invention patented by an employee, even if made while working for them, than a stranger.



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